CORPORATE STRATEGY AS PLURAL RATIONALITY*

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CONTENTS

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ABSTRACT

Conflicting model-based prescriptions for strategy are viewed from the perspective of the extended general theory of rational decisions. The conflicts are re-cast as general meta-rational arguments and this perspective yields diagnostics for evaluating strategy-models. There follows a quite radical re-formulation of the prescriptive dimensions of strategic-management, such that the general theory of rational decisions is seen as *the* latent prescriptive theory of strategy. In "Strategy as Rationality" the strategic-entity (individual, group, organization, network, etc.) is cast as a *plurally*-rational agent, with rationality informing strategy and *vice-versa*. Meta-rational and meta-ethical arguments then project this new framework into the ethical domain, with the strategic-entity now cast as a moral-agent. The extended framework of "Strategy as Moral Philosophy" carries with it further implications for prescription in strategic management, whilst is also complements an emerging re-integration, at the systemic level, of Economics with Ethics.

The new conceptual framework is then applied to: (i) the strategic mystery of corporate investment decisions with sunk costs, involving the set of *backward-looking* rationalities, (ii) competitor-analysis and strategic-intelligence, involving a view of other strategic entities as *plurally*-rational agents, and (iii) capital-budgeting methodologies. The latter application prescribes modification and confinement of some traditional decision-rules for strategic investments.

INTRODUCTION

INTRODUCTION

The thesis, which consists of six major chapters, is in two sections. Section one (chapters 1, 2 & 3) represents several stages of theory development, in the area of strategic management, but with particular emphasis on its prescriptive dimensions. Specifically, a new conceptual framework is set out and developed. Section Two (chapters 4, 5 & 6) is more oriented towards some enduring strategic mysteries, seeking out their solutions within this new framework.

In the first major chapter, "Meta-rationality and strategy", the question of conflicting model-based strategy prescriptions is viewed from the perspective of recent developments in the general theory of rational decisions. The first stage of a wider conceptual framework is then proposed, involving the concept of decision-function-rationality and a partially structured set of multiple rationalities, with their meta-rational relationships. Conflicting model-based prescriptions are then recast as conflicts between alternative forms of rationality. This preliminary framework is then operationalised, in the sense of deriving a methodology that involves a structured set of diagnostic questions. These questions target the analytic models and heuristic processes routinely used in strategic decision analysis. This framework also offers a means to identify situations where there is only limited scope for further technical analysis in the strategy formulation process. Some implications for strategic decision-support-systems are then outlined, with a brief discussion of some comparable theories and techniques.

Chapter two then takes "meta-rationality & strategy" as a vantage point, from which to adopt a quite radical new perspective on the entire concept of strategic management itself. In "Strategy as Rationality", the general theory of rational decisions is seen as the latent prescriptive theory of strategic management, with the strategic *entity* re-cast as a *plurally*- rational- agent. This new perspective explains and justifies the prescriptive dimension of strategic management theory, whilst it also at the same time places rationalistic inquiry on a par with empirical approaches in strategy research. In "Strategy as Rationality" strategic thinking is seen to extend across the entire set of the plural rationalities, according to the various contexts of a "perceived multiverse", to use a term suggested for this very purpose by Milan Zeleny (1992).

In the new framework, the plural rationalities form a structured set which is shown to be *isomorphic* to a structured set of strategy concepts. An explicit isomorphic correpondence then carries with it several implications for theory and research in strategy...and in rationality. Meta-rational arguments are invoked once again with several examples of rationality informing strategy: *optimal* strategy, *expressive* strategy, not-for-profit-*commitments* etc. All such strategies are rational, yet fundamentally different. This framework is also made operational as a new technique of strategic inquiry, the SCIO technique, which is simply a set of questions shaped around plural rationality, intended for *meta*-cognitive inqiry and evoking a particular form of wisdom.

Chapter three, "Strategy as Moral philosophy" again builds upon this, its immediate predecessor. If strategy and rationality are both broadly concerned with problems of action, decision and behaviour set in socio-economic contexts, then so too is Ethics and the broad discipline of Moral-Philosophy. This simple observation leads directly to an even more general framework that sees the theory of strategic behaviour as nothing other than a theory of Ethics, with the organisation now recast as a moral-agent. This effectively integrates strategy with ethics, a step that, according to Georges Kervern of the Union Des Assurances in Paris (1991), is potentially *"une therapeutic - la moins violente possible - des maladies de la societe"*. Plural rationality and ethics are now linked directly to prescription in strategic management, so that issues in ethical theory, such as choosing rationalities also become central mysteries for strategy formulation and strategy research. This new approach simply complements, at the level of the strategic entity, an emerging synthesis of Ethics with Economics at the aggregate or public-policy level.

Chapter 4 (section 2) then picks up one particular theme first introduced in chapters 2 & 3, namely the mystery of strategy in the sunk cost context, or strategic re-considerations. This widely studied problem is now seen to be equivalent *(isomorphic)* to that confronting a plurally-rational individual who cannot be certain about the future but is re-considering a partially-implemented personal plan. Normative, descriptive and prescriptive dimensions of a re-formulated generic sunk cost problem are re-interpreted, with particular emphasis on *sunk cost factors,* i.e. factors recognised within the normative theories as representing the latencies or carryovers inherent in past strategies. A simple new inquiry procedure for strategic re-considerations, SCIO-*BAK*, is then derived from the set of backward-looking rationalities. This, in turn, represents but one very

specific way in which the general theory of rationality can now inform or enrich the general theory of strategy. The conflicts and ambiguities surrounding the principle of ignoring sunk costs in normative theory are then re-cast as meta-rational arguments involving the backward-looking *versus* foward-looking rationalities, this time drawing upon the framework of chapter one.

Chapter five continues the orientation towards context-specific applications, with a particular focus upon the strategic intelligence function, or competitor analysis. The chapter outlines some new methodologies for competitive and strategic analysis that are based directly upon the conceptual frameworks set out earlier. In the first part, a device is proposed for screening general theories and models of competition, with respect to their potential value for business intelligence analysis. The second part revisIts the various diagnostic questions outlined earlier in chapter one, referring these to the competitor analysis context. Then, yet another variant of the SCIO technique is set out (based upon "strategy as rationality") this time as a technique intended for competitor analysis, rather than a broader reflective strategic analysis. Some 40 questions are derived from the plural rationalities as a prescribed focus for this type of intelligence activity.

Finally, chapter six explores the implications of "Strategy as Rationality" for the use of traditional capital budgeting techniques. As in chapter four, above, the convergent meta-theories of modelling, forecasting, systems and rationality together are seen as determining the various specific roles and limitations of DCF techniques. They particularly show that NPV decision-rules should not be used to prescribe investment *versus* non investment strategies, but that it could be rational (in the relevant strong-instrumental sense) to apply DCF techniques after the firm's investment strategy has emerged, in order to select amongst known capital assets, or to solve some types of financing problem. The latter is a quite different problem-type, or problem domain. Therefore, the use of DCF decision-rules in the secondary phase of investment decision-making requires some reformulated domain-specific decision-rules that are quite different from the usual model-based equilibrium returns criteria. Thus, strategic and financial analysis may now be comfortably reconciled, not only by using meta-rational arguments (as in chapter one) but also, in this final chapter, by confining the different forms of analysis to seperate problem-domains.

CHAPTER ONE

META-RATIONALITY AND STRATEGY

Appeared as: SINGER AE Meta-Rationality and Strategy *OMEGA: Int.J. of Mgmt Sci.*, 19, 2/3, pp.101-112.

1. INTRODUCTION

Conflicts between alternative strategic and financial appraisals of investment opportunities are quite common in practice. For example, in a recent case-study (Shank *et al,* 1988) a bicycle manufacturer was considering an opportunity to greatly improve turnover by supplying a retail-chain with a large private-label inventory at discounted prices. Financial analysis yielded a large positive NPV and residual income, prescribing a "go" decision; yet basic strategy principles, such as market segmentation and competitive analysis, led directly to a "no-go" prescription for the same proposal.

In that particular case, several specific issues were identified as seperating the alternative forms of decision-analysis. These included: (i) the deliberate omission of some factors from financial forecasts, (ii) the seemingly unethical treatment of the firm's traditional retailers, (iii) the possibility of traditional dealerships subsequently asking for a similar discount deal, and (iv) the potential organisational implications of such a major shift in business strategy. This paper examines these and other similar issues, in the context of a broader theoretical investigation of conflicting prescriptions for strategic investments.

Specifically, a conceptual framework is outlined and is used to produce a structured set of diagnostic questions to help resolve such conflicts, and to identify problem-situations where there is only limited scope for further technical analysis. In essence, this is achieved by recasting conflicting prescriptions as manifestations of deeply-rooted but partly resolvable conflicts between alternative forms of rationality. Some implications of the framework are traced for strategic-level decision-support-systems (DSS), where a similar issue of conflicting alternative approaches has frequently surfaced. A final section of the paper positions the framework and the derived diagnostics relative to alternative strategic planning methodologies and strategy research-paradigms.

Within the framework, strategy prescriptions are analysed at three levels: at the first level are the various alternative decision-models and techniques themselves, together with the questions that frequently arise in practice (and in the theoretical literature) about their inter-relationships. At the second level are the multiple forms of rationality that could be displayed by a strategic-level rational-agent, or manager. These multiple

forms of rationality can be placed in correspondence with the various alternative models and strategic principles. At the third level are the various inter-relationships between the multiple forms of rationality. The latter (meta-rational) relationships have already been intensively investigated, with results that have substantive implications for strategy prescriptions.

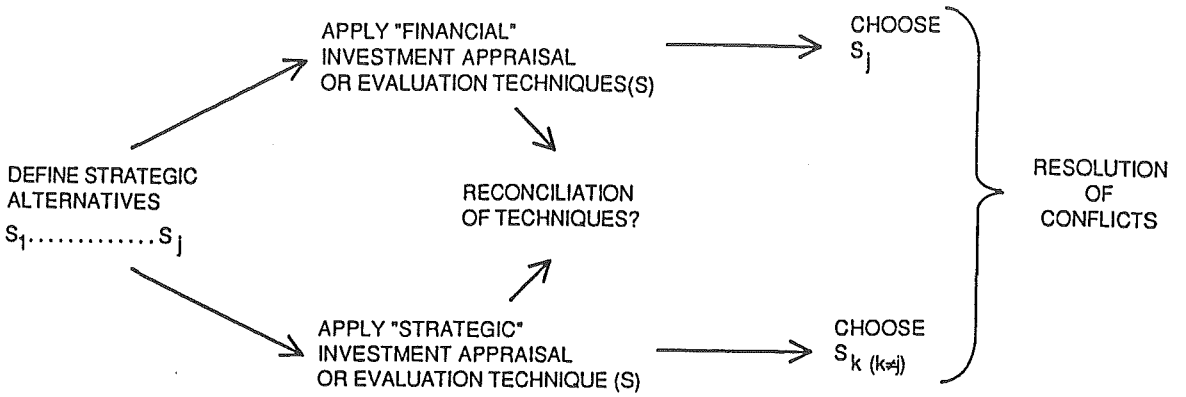
The framework is operationalised by specifying diagnostics that evoke these metarational relationships and hence bring to the surface the deeper philosophical roots of conflicting model-based strategy prescriptions. Furthermore, by identifying the incomplete or problematic metarational arguments, the methodology identifies situations where further strategic and financial analysis is unlikely to bear much fruit in practice.

2. COMPONENTS OF A CONCEPTUAL FRAMEWORK.

The general concept of conflicting model-based prescriptions for strategic decisions is illustrated in Figure 1. In the context of special investment opportunities, or a routine strategic review, various investment alternatives $\{S_1,\ldots,S_j\}$ might be considered (e.g., status quo, capacity expansion, foreign acquisition, divestment, a major R&D effort, increased marketing expenditure, etc.). To faciliate appraisals, planners could use various financial analysis models $\{M_1,\ldots,M_L\}$ such as the capital-asset-pricing-model (CAPM) with probabilistic multi-period returns-forecasts, financial options-valuation models, or other quantitative techniques. They might also employ strategic (qualitative or heuristic) planning guidelines $\{M_1',\ldots,M_n'\}$ such as the Boston Consulting Group (BCG) portfolio matrices, or "PIMS" principles, or, in some cases, refer to established policy guidelines for the business (such as "internal development, not acquisitions").

When more than one of these techniques, guidelines and principles are applied to the same investment proposal, conflicting prescriptions can easily result. Accordingly, questions have often been asked about whether such conflicts can always be resolved, or how model-based techniques and other principles might ultimately be reconciled; but these questions have not been fully answered (e.g. Myers, 1984; Pinches, 1982, in finance; Bettis, 1983; Bowman, 1980; Cooke, 1985 and Wensley, 1981, in strategy). The framework proposed in this paper represents an attempt to make some progress on these issues.

FIGURE 1. CONFLICTING PRESCRIPTIONS FOR STRATEGIC INVESTMENTS



The framework comprises the various investment and planning models themselves, as well as an extended notion of a rational model-user, or owner of the strategic problem. Specifically, the framework combines the concepts of: (i) **multiple forms of rationality**, (ii) **decision-function-rationalities** (e.g., Morecroft, 1983), and (iii) **meta-rational arguments** (e.g., Jungerman, 1983). Thus, the framework draws together several recent developments in the general theory of rational decisions, in the particular context of strategic decision making, representing an overall approach that is normative (i.e. "what should be done") and prescriptive (i.e. "how can the framework help?") rather than descriptive.

The idea of extending the concept of a rational agent in strategic decisions has often been foreshadowed in the planning-related disciplines (e.g. Pinches, 1982; Jungerman, 1983; Michael, 1989 and Nooteboom, 1989). At the same time, multiple rationalities $\{R_1,.....,R_m\}$ have been identified and employed in several studies of decision-making (e.g. Binmore, 1987; Cherniak, 1986; Elster, 1979; Hamlin, 1986; March, 1978; Sen, 1977; and Simon, 1987, to mention but a few). Figure 2 presents a taxonomy of these forms, which are briefly described in the next section.

3. FORMS OF RATIONALITY AND STRATEGIC DECISIONS

The taxonomy in Figure 2 is used to organise the overview, which first considers "calculated" versus "systemic" forms, then "means-rationalities", "belief-rationalities" and "ends-rationalities", at the same time indicating some linkages to strategic planning issues. Whilst an attempt is made to minimise the use of unecessary jargon, several specialised terms are used here essentially as labels, deliberately evoking richer and fuller descriptions from within the various source references.

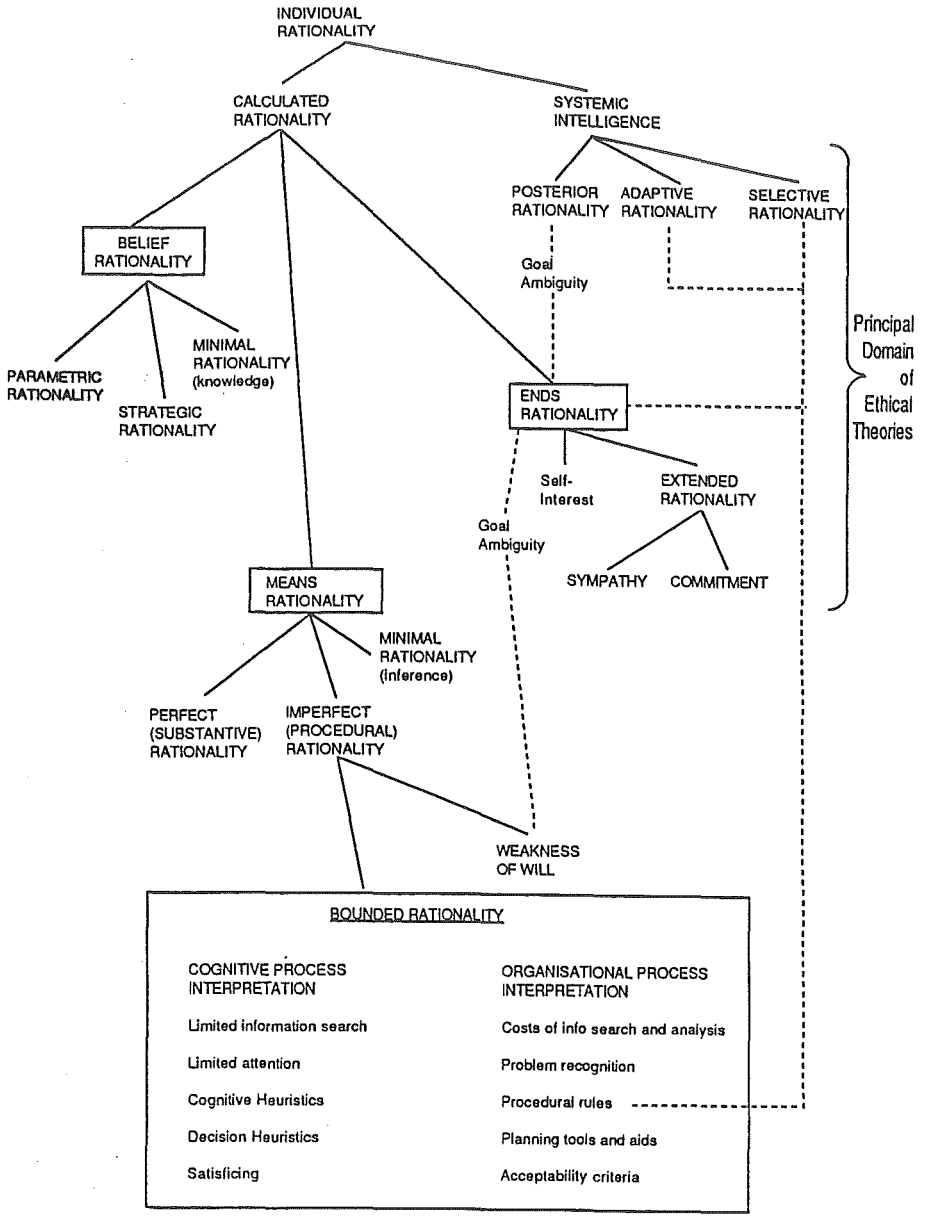
Calculated and Systemic Rationalities

First, a basic distinction between calculated versus systemic forms has been drawn (March, 1978). Calculated rationality embraces the whole process of goal-setting, belief-verification and discovery of suitable means for achievement of those goals. By contrast, systemic forms like selective rationality involve historical references. Under a criterion of selective rationality, a decision to act is deemed rational if similar acts in similar circumstances have, in the past, enabled survival and development of the decision-making agent. Similarly, Posterior rationality refers to the pusuit of goals that have themselves emerged from past experiences; whilst adaptive rationality refers to the use of decision-making rules derived in that way. Thus, for example, a corporate strategic decision reflecting a corporate tradition of internal development, in the face of an acquisition proposal having high (forecast) profitability, could be adaptively rational, even if not rational in the calculated sense. Conflicts involving corporate traditions versus financial appraisals could then be understood in terms of the relationships between these forms of rationality.

Means Rationalities

Economic theory has traditionally been concerned with the means-rationality of the decision-making agent (model-user or problem-owner) and particularly with substantive forms, where rationality is defined with reference to outcomes, like the utilities in some finance-theoretic models. These substantive forms may be distinguished from procedural forms involving rule-governed processes in decision making. (Procedural forms and adaptive forms have some similarities, as indicated in Figure 2.) An emphasis on process rather than outcome also distinguishes imperfect from perfect forms. The latter assume total knowledge of the relevant environment (omniscience) and outcomes, whilst imperfect forms emphasise procedures that help overcome the decision maker's recognised limitations.

FIGURE 2. FORMS OF RATIONALITY IN DECISION-MAKING



(The solid lines are directed arcs denoting the relation ". . is a form of . .", whilst the dotted lines denote ". . shares some significant common properties with . .")

Bounded rationality is one particularly richly-described form of imperfect rationality (Hamlin, 1986). Bounded rationality has been widely interpreted (Scwenk, 1984; Simon, 1987) both in terms of individual cognitive processes (limited search and attention, cognitive heuristics, satisficing, etc.) and their metaphorical organisational couterparts (costs of information, problem identification, procedural rules, acceptability criteria, etc.) Many strategic planning aids or heuristics merely assist the decision maker in structuring limited relevant knowledge, so they implicitly assume bounded rationality, or something less than the perfect rationality of the model user. In contrast, applications of models like the capital-asset-pricing-model to strategic investment decisions implicitly assume substantive or perfect rationality, with particular, known goals.

Weakness-of-will is another imperfect form (Hamlin, 1986) that accomodates the possible instability of goals over time, with the consequent rationality of binding precommitments, as in the mythical behaviour of Ulysses' who deliberately bound himself to his ship's mast (Elster, 1979). With this concept of rationality, a strategic investment could be deemed rational if it were considered to constrain future possible changes of goal.

Belief Rationalities

Some cases of conflict in decision making might be traced to straightfoward disagreements over the facts. These are rooted in the question of the objectivity of beliefs, which is also the subject of various forms of belief-rationality. Evidence shows that contrasting beliefs often involve parametric versus strategic rationality (Einhorn *et al,* 1982; Elster, 1979). The former entails failure to recognise environmental (e.g., stakeholder) responsiveness to the agent's actions, or the misperception of the controllability (Langer, 1975) of various factors. In a planning context, misperceptions sometimes occur concerning factors like the ability to influence legislation, or concerning the causal nature of known statistical relationships like the ROI - market share link.

Another common and more general source of conflicting prescriptions involving beliefs, is the unintentional overlooking of important factors in appraisals. The activation of (at least some) relevant beliefs, or knowledge, has been identified as a requirement for minimal rationality (Cherniak, 1986). Therefore, this particular form of rationality is implicit in decision-making techniques that involve checklists of relevant factors, assumptions-surfacing and testing (Mason *et al*, 1981), or "brainstorming" approaches, etc.

Ends Rationalities

Finally, concerning the definition of rational goals or ends in decision making, the distinction between self-interest (egoism) versus extended forms (i.e. others' interests) and the further distinction between sympathy and commitments, is also relevant to a rational strategic analysis. Rational-sympathy is where concern for others directly effects one's own welfare, as in the stakeholder approach. Commitments, by contrast, can involve the concept of counterpreferential choices (Sen, 1977) where utility is deliberately and rationally sacrificed for other purposes, even after allowing for any utility associated with psychological empathy. These forms of rationality could be reflected in rational managerial decisions involving self-sacrifice and commitments.

4. THE CONCEPTUAL FRAMEWORK

Having briefly identified and classified various forms of rationality the next step in constructing the conceptual framework is to make explicit the correpondence between strategic decision models or principles, and their particular implicit forms of rationality, using the concept of "the decision-function-rationality (DFR) of a model" (Morecroft, 1983).

Decision Function Rationalities

The DFR of any given decision-model is the particular implied form of rationality displayed by the model user. Thus, for example, the DFR of the CAPM applied to strategic investment appraisal, is perfect or substantive rationality (with particular known goals). Although Morecroft introduced the term "DFR" in the context of bounded versus perfect forms of rationality, the fundamental concept of a mapping having models or principles as its domain, with forms of rationality as its range, may be extended. It is generally possible to place any given model, technique, or corporate policy principle (e.g., "technological leadership at all costs", "we should investment in social programmes") in correspondence with a particular implicit and identifiable form (or forms) of rationality in decision making (Figure 3). Several examples of this correspondence are offered in the subsequent section on operationalisation of the conceptual framework.

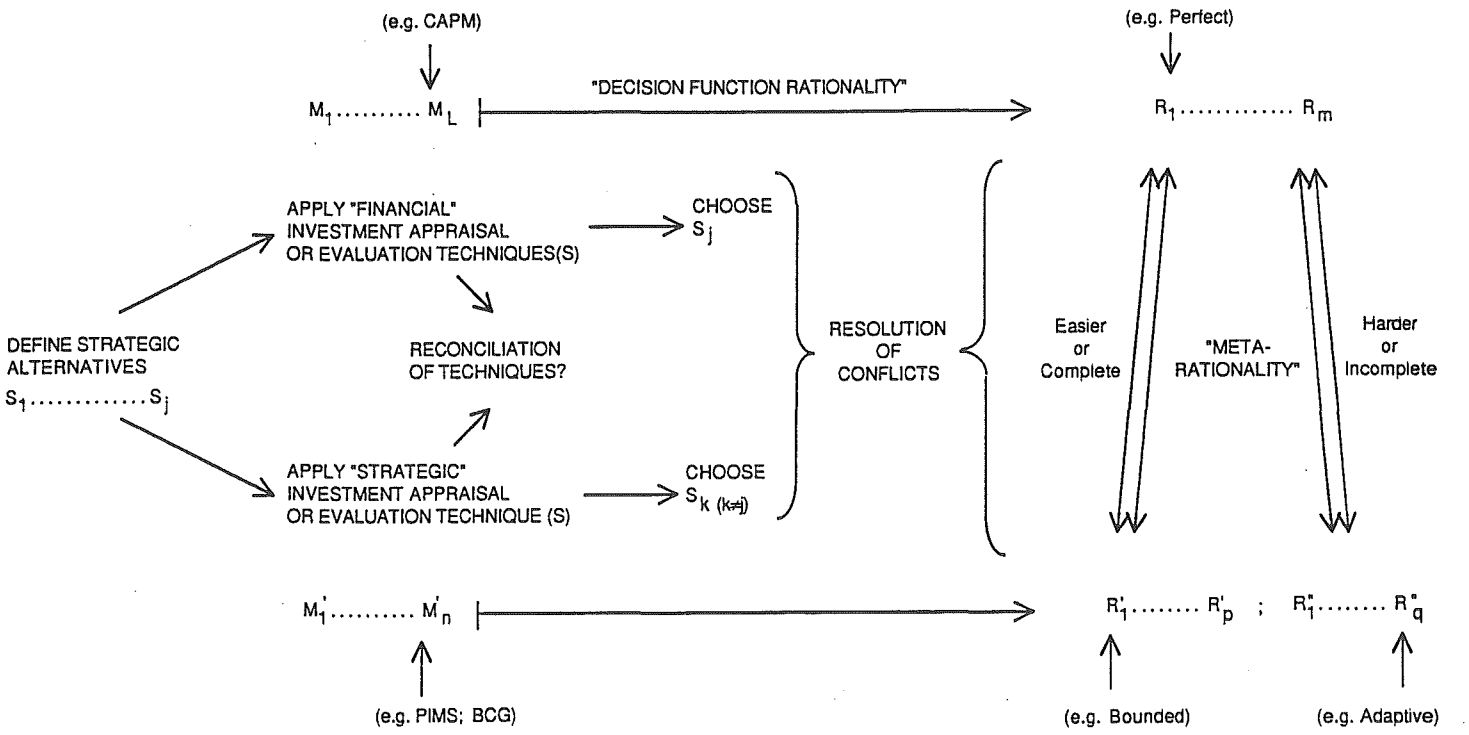
Metarationality

As suggested earlier, once the DFRs are identified, the relationship between any given prescriptions or techniques may then be characterised in terms of the philosophical arguments and mathematical results that represent attempts to place the corresponding forms of rationality relative to one another (Hamlin, 1986; Jungerman, 1983). These have been called "meta-rational arguments" (Jungerman, 1983).

Depending on the particular forms of rationality identified in a given case of conflicting prescriptions, finding or constructing a metarational argument may be relatively easy (as in the case of bounded versus perfect forms) or relatively difficult, as in the case of placing strategic beliefs within substantive rationality (game theory). In addition to bounded versus perfect forms, other relatively easy metarational arguments involve sympathy and self-interest, precommitment and perfect forms, and to some extent (indicated later) beliefs about controllability and causality. Harder cases include some further aspects of beliefs about causality and strategic

interdependence, rational commitments, systemic versus calculated forms, and non-consequentialist moral principles (i.e. meta-ethics). Other metarational arguments, involving any two given forms of rationality, are often structured around these canonical arguments.

FIGURE 3. A CONCEPTUAL FRAMEWORK FOR RESOLVING CONFLICTING PRESCRIPTIONS



The "difficulty" of a metarational argument need not be precisely defined for present purposes, but is generally determined by the existence of paradoxes, infinite regresses, disputed definitions, context effects, learning, or other currently unresolved philosophical arguments and empirical findings about rationality itself.

This distinction between the "easier" versus "harder" (or relatively complete versus incomplete) metarational arguments is the final component of the proposed theoretical framework. This distinction corresponds, via the DFR mapping, to having relatively favourable versus unfavourable prospects for reconciling prescriptions through further model-based analysis. In cases where "easier" arguments apply to the relevant DFRs, further analysis, information search, or the refinement of heuristics is prescribed by the framework (as in Metaforecasting research, Makridakis, 1988). However, where conflicts correspond via DFR to the harder metarational arguments, there are some more fundamental and problematic decision theoretic issues involved. Therefore, for these cases, further analysis in practice is unlikely to resolve the conflict nor reconcile the models. These harder cases also suggest some limitations of model-based DSS for rational strategic planning, with some specific loci for an intuitive or judgemental contribution from the model-*user* (e.g., predicting competitors' strategic moves, incorporating ethical issues, corporate traditions, cultures, into a strategic analysis). These are explored further in the remaining sections.

5. OPERATIONALISATION OF THE FRAMEWORK

The rather abstract represention of conflicting strategy prescriptions in terms of meta-rational relationships actually yields a practical methodology for decision analysts, involving a set of diagnostic questions for resolving conflicts or for challenging assumptions. The desirability of creating such sets of "penetrating" questions to accompany any formal analysis has been argued elsewhere (e.g. Fischoff *et al,* 1984). Within the present framework, a set of simple diagnostic questions (Table 1) emerge naturally and may be used to evoke the canonical metarational arguments, enabling easy identification of the relevant one(s), for any given case. Suitable directions for reconciling the prescriptions are then indicated. The same approach may also be used simply to qualify any particular model-based prescription.

The introductory case about the bicycle manufacturer, together with other examples of strategic issues, are now used to illustrate this methodology. The illustrations are presented with reference to each of the canonical metarational arguments, in turn.

TABLE 1. DIAGNOSTICS EVOKING META-RATIONAL ARGUMENTS

To resolve conflicting prescriptions or qualify financial appraisals, consider:	Diagnostic evokes a Metarational Argument Concerning:
Q1. ARE (VARIOUS FACTORS) INCORPORATED INTO FORECASTS OF KEY-PERFORMANCE-PARAMETERS (ROI, NPV etc.)? [e.g., Factors such as cannibalism of product lines, salesforce motivation, etc. might be overlooked in forecasts of cashflows.]	
Q2. ARE (VARIOUS FACTORS) CONSIDERED BEFORE OR AFTER THE STRATEGIC DECISION? [e.g., Factors such as the cost of severance payments in plant relocation decisions might be deliberately considered as "tactical"]	BOUNDED RATIONALITY
Q3. ARE THE (HEURISTIC) RULES APPROPRIATE IN THIS CONTEXT? [e.g., Funds from "cash-cows" might best be used to retire debt. This conflicts with one heuristic planning prescription]	
Q4. WHICH CAUSAL OR STATISTICAL RELATIONSHIPS HAVE BEEN EMPLOYED? [e.g., In forecasting ROI, has the statistical relationship with market-share been considered?]	
Q5. ARE STAKEHOLDER'S INTERESTS AND REACTIONS CONSIDERED? [e.g., Plant closures can effect he regional economy and hence the likely growth of other portfolio businesses.]	EXTENDED RATIONALITY (SYMPATHY)
Q6. IS THE INVESTMENT CONSTRUED AND EVALUATED AS A PRECOMMITMENT? [e.g., An investment in R & D might be a deliberate attempt to pre-empt future deviation from current goals.]	WEAKNESS OF WILL and PRECOMMITMENT
Q7. HAVE ANY IMPORTANT FACTORS BEEN OVERLOOKED [e.g., The response of traditional dealerships could be overlooked in a move to supply a retail chain.]	MINIMAL RATIONALITY
Q8. WHICH FACTORS HAVE BEEN CONSTRUED AS CONTROLLABLE, OR CAPABLE OF BEING INFLUENCED? [e.g., Government action on import tariffs.]	BELIEF RATIONALITIES
Q9. ARE CONDITIONAL FORECASTS USED? [e.g., Forecast ROI allowing for competitor's likely responses to the particular proposal.]	
Q10. HAVE MULTILATERAL (GAME THEORETIC) SITUATIONS BEEN IDENTIFIED? [e.g., simultaneous capacity expansion decisions]	STRATEGIC BELIEFS (MULTILATERALITY)
Q11. IS THE STRATEGIC ANALYSIS BASED ON MANAGERIAL SELF-INTEREST (VS. A GENUINE COMMITMENT TO "SHAREHOLDER VALUE") [e.g., use of a market-share goal despite expected adverse impact on shareholder value]	EXTENDED RATIONALITY (COMMITMENT)
Q12. IS THE STRATEGIC ANALYSIS BASED ON SOME (OTHER) COMMITMENT? [e.g., maintaining employment]	
Q13. IS (CORPORATE) TRADITION OR CULTURE A FACTOR? [e.g., an established tradition of internal development vs. acquisitions]	SYSTEMIC FORMS
Q14. ARE NON-CONSEQUENTIALIST ETHICAL PRINCIPLES INVOLVED? [e.g., a duty to avoid harming other, if possible]	MORAL PRINCIPLES (DEONTOLOGY)
Q15. ARE SUBJECTIVE PROBABILITIES APPROPRIATE FOR THIS PROBLEM? [e.g., probability of an event in a social system]	
Q16. DO SUBJECTIVE PROBABILITIES (IF USED) REFLECT SUFFICIENT KNOWLEDGE? [e.g., opinion-based probabilistic inflation forecasts]	PROBABILISTIC BELIEFS
Q17. HAVE APPROPRIATE TECHNIQUES BEEN USED TO ASSESS THE RELIABILITY OF INFORMATION? [e.g., the probability that information about a competitor is "true"]	TRUTH-VALUES

Bounded versus Perfect Forms

Some of the factors that were explicitly considered in the strategic analysis for the bicycle manufacturer were deliberately omitted from the financial analysis, specifically because it was considered not worth the effort to quantify them. One such factor was the possibility that traditional dealers might ask for a special price, similar to the large retailer. In this instance, the conflict with financial analysis can be traced to a decision not to attempt to quantify what is at least partly quantifiable. There is a corresponding metarational argument linking bounded versus perfect forms, that concerns the costs (disutilities) of the information search and processing that would be needed to achieve (hypothetical) perfect rationality.

The same metarational argument applies to many other cases of conflict involving planning heuristics, since these are usually capable, at some cost, of being at least partly reconciled with financial appraisals through further analysis. For example, the BCG portfolio planning heuristic which prescribes investment in "high growth markets where competitive position is strong" may, in principle, be reconciled with financial analysis simply by reflecting those same product-market characteristics in the projected cashflow stream; but this sort of forecasting is notoriously unreliable and rarely attempted in practice (e.g. Marsh *et al,* 1988, p103). Similarly, PIMS results might also be viewed as crude (conditional) profitability forecasting devices. (e.g., "if we increase marketing expenditure in this situation then we can expect higher ROI." etc.)

Accordingly, diagnostics Q1, Q2, Q3 and Q4 (Table 1) are designed to reflect the underlying metarational argument for cases like these, and to indicate appropriate steps toward resolving the conflicts. Q1 refers to adjustments to forecasts to allow for factors often not reflected in historical data, such as cannabilism of product lines, salesforce motivations, competitor reactions, etc. Q2 refers to a deliberate distinction between strategic versus tactical considerations, such as the ignoring of likely severance payments in plant-relocation decisions. Q3 refers to the need for care in specifying context when considering the use of planning heuristics. For example, one strategic planning aid suggests using funds from "cash-cow" businesses within a corporate portfolio, to finance "Question Marks". Yet this could be hard to justify where the corporation is over-leveraged so that debt-retirement has a high present value. In a

similar spirit, Q4 invites examination of any causal or statistical relationships used in the strategic analysis (like ROI and market share) to check that they are relevant to the particular case.

Sympathy versus Self-Interest

In the bicycle case, it was suggested that the traditional dealers would be potentially disadvantaged by a proposal to go private-label. This was described as an "ethical issue" within the strategic analysis. Yet, concerns for this stakeholder group might simply be a prudent regard for the likely impact (on the bicycle manufacturer) of the dealer's reactions. Since managerial self-interest is normally tied in with that of other stakeholder groups (through incentives) this is an example of sympathy (Sen, 1977) or enlightened self-interest. Similar considerations often arise in strategic decisions, for example, where proposed plant-closures are thought likely to impact local economies to the point of damaging related businesses.

In principle, the resolution of such conflicts also lies in a more thorough analysis. Attempts have been made to represent stakeholders directly within an extended finance-theoretic model (Cornell *et al,* 1987). However, there are other aspects of extended rationality in strategic decision making, such as commitments (Sen, 1977), that may not be captured by these models (commitments are considered below). The various metarational arguments involving extended forms may be evoked in practice by Q5, referring to stakeholder interests and reactions.

Perfect versus Precommitment Forms

As an example of precommitment in strategic analysis, a decision-maker might approve a long-term research budget because it is considered likely to deter possible future deviations, from a mission that is currently seen as worthwhile. This unconventional principle for investment decisions has precommitment as its DFR. The metarational argument linking precommitments to perfect rationality involves the notion of a decision-maker trying to forecast or "guess" his future goals and preferences (March, 1978) and then calculating implications for current choice-utilities. Q6, which refers to the possibly desirable binding effect of a strategic option, evokes this argument.

Rational Beliefs and Controllability

The issue, discussed earlier, of "the current dealers possibly asking for a similar deal" to the large retailer, may be considered again with reference to belief-rationalities. First, including such aspects as part of a strategic analysis but omitting them from a financial analysis could simply reflect an effort to ensure that important factors are not overlooked. This, in turn, corresponds to the idea in minimal rationality (Cherniak, 1986) of accessing relevant knowledge, or of drawing appropriate inferences in decision making. This aspect of rationality may be evoked by a simple diagnostic about important factors, Q7. Second, the above event and its impact could be assessed in terms of subjective probabilities, or it might be controlled or influenced through other actions. Thus a preliminary approach to handling these issues involves further analysis using judgements of controllability, Q8, and conditional forecasts, Q9. The corresponding metarational argument involves adjustment of beliefs, to accomodate at least some aspects of strategic interdependence and controllability, more objectively.

Strategic Beliefs and Perfect Means

This is one of the harder cases. There have been various attempts to develop models that incorporate competitors' reactions into cashflow or profit forecasts for NPV calculations (e.g. Myers, 1988; Singer *et al,* 1990). However, there has been no empirically tested, reliable methodologies for cashflow forecasting in strategic contexts (Doktor *et al,* 1988; MacIntyre, 1984; Michael 1989). The corresponding metarational arguments, linking strategic beliefs with perfect rationality encounter many unresolved difficulties involving infinite recursions, computational limits and the multiple solutions of game theory (Axelrod, 1984; Binmore, 1987). The difficulty of the metarational arguments in these case suggests that further analysis would be of only limited use in practice.

Q10 reflects these arguments. As a preliminary step towards resolving related conflicts, planners could seperately identify: (i) relevant "parametric factors" like RDI and inflation, that are normally not conditional on corporate actions, which could be forecast using various models (ii) "semi-strategic factors" like competitors' subsequent reactions to a proposed move (as in meta-games) for which conditional forecasts might be appropriate, (iii) "pure strategic factors" that are truly multilateral, as in simultaneous capacity-expansion decisions by two or more players, for which other approaches could be needed.

Different Commitments

This is another harder case. Sen's (1977) concept of a rational commitment identifies a potential for more fundamental, idealogical conflicts between financial and strategic analyses, perhaps seen most clearly in capital budgeting for not-for-profit organisations. Specifically, this could occur where conflicting prescriptions arise from different goals (or sets of goals) but where the sympathy argument does not pertain. A normative resolution would require some principle for ranking goals in strategic decisions. That is, an "ideal" or "meta preference" would be needed. But none has ever been established unequivocally for individual decisions nor for corporate policy. Actual examples of management policies corresponding to unconventional corporate goal priorities are: (i) A commitment to become the market leader, regardless of financial cost (e.g., "Cola wars"), (ii) A commitment to preserve employment of existing personnel, and to make investment decisions accordingly. (This practice has been followed at times by some Japanese companies) and (iii) A commitment by governments to military defence, or disease prevention, etc., regardless of cost. In these cases, even if a carefully calculated, expected NPV turned out to be large and negative, a committed decision maker could still approve the investment and lay claim to a form of rationality. Q11 and Q12 are simple diagnostics for identifying (but not necessarily resolving) such fundamental conflicts.

Systemic Intelligence versus Calculated Rationality

Returning again to the bicycle case, one of the major strategic issues for the manufacturer was expressed as: "Going 'private label' is a strategic shift; what are the organisational implications..?". This strategic issue raises the question of the possibility of accounting for organisational traditions, cultures and structures in financial forecasts, for capital budgeting appraisals.

This issue frequently surfaces in the context of appraising strategic acquisitions, where positive-NPV acquisition proposals are sometimes rejected on the grounds of a corporate tradition of internal development. Yet this might still be rational, in a particular sense. The metarational arguments linking systemic with calculated forms are difficult and incomplete, therefore doubts remain about the rationality status of the "tradition" argument. Whilst financial forecasts might allow for additional costs of implementation due to cultural mismatches, these techniques make no reference to the historical source of the various goals and principles involved in

defining cultures; yet some knowledge or appreciation of that source is the essence of systemic intelligence (March, 1978). Thus, treating traditions or cultural changes purely as a financial forecasting problem in strategy evaluation, omits what might be an important ingredient of rationality. Q13 could be used to identify this possible source of conflict; but again without promising any eventual resolution, because of the difficulty of the corresponding metarational arguments.

Non-Consequentialist Ethics

The ethical issue of the position of the traditional dealers, mentioned earlier, might be interpreted instead as one involving particular moral duties, obligations, or other ethical principles. Formalising these notions and transforming them into consequentialist rational principles is another long-standing and unresolved theoretical problem. So, where conflicts arise from the evaluation of strategies relative to deontological moral principles (e.g., "Avoid harming others, if possible", "Fulfill moral obligations", etc.) these cannot be resolved easily through further analysis in practice. Hence Q14 identifies another source of relatively intractible conflict (Hunt *et al,* 1986; Singer *et al,* 1987).

Probabilities, Information and Beliefs

Finally, there are some additional relevant issues, involving applications of probability theory, that are interwoven with some of the above metarational arguments. Subjective probability estimates for events in social systems generally have been critically contrasted with the case of physical systems (e.g. MacIntyre, 1984). Techniques for eliciting subjective probability estimates for strategic decision-support usually do not make reference to the cognitive mechanisms nor the level of knowledge underpinning those subjective estimates. This suggests that in strategic applications of finance-theoretic models such as the CAPM, any probability values used could be subject to cognitive bias, may not reflect adequate knowledge, and may not have been correctly revised (in the Bayesian sense) to eliminate potential suprise (Binmore, 1987). Q15 and Q16 refer to these possible sources of weakness involving rationality and probability in model-based analyses. Finally, there remains the issue of how to account for the source-reliability, credibility or truth-value of the items of information used to formulate prescriptions [2], [40]. Diagnostic Q17 reflects the fact that conflicting prescriptions might arise in practice from inappropriate handling of credibility.

Summary

Diagnostics (Q1 - Q17) may be used to evoke various canonical metarational arguments. Where easier metarational arguments apply, technical improvements and further analysis are appropriate for improving decision quality (along the lines of metaforecasting research). Where harder or incomplete metarational arguments apply, however, the conflicting prescriptions are symptoms of a more fundamental or unresolved decision-theoretic problem, so that a satisfactory resolution in practice, through further technical analysis alone, is unlikely.

6. IMPLICATIONS FOR STRATEGIC-LEVEL DSS

The issue of alternative and conflicting model-based approaches to strategic investment analysis has also frequently surfaced in the specialised DSS literature. For example, a recent review (Finlay *et al,* 1989) contrasts "extrapolatory MIS" such as spreadsheets (which are commonly linked to the use of NPV criteria) with Management Intelligence Systems (MINTS). The latter involve the use of formal planning models, scenario generation and techniques for structuring and organising information, much of which cannot easily be incorporated into a spreadsheet financial analysis of a strategic option. To date, intelligent systems have sought to support the modes of thought with which user feels comfortable, rather than force a particular form of rationality upon the user.

However, no normative theoretical basis has been offered to justify this emergent philosophy of strategic decision-support. So far, the literature describing the evolution of DSS for strategic planning has tended to focus on technical issues and experiences with particular models and systems (e.g. Oral, 1986; Rockart *et al,* 1988) but not on a comprehensive theoretical framework emcompassing both the system and the user. The present framework provides a ready-made but largely unrecognised normative underpinning for current practices. It also points to some specific loci for system-user's judgements concerning strategic goals and means, as outlined in the following sections.

Strategic Goals

Meta-rational arguments involving ends-rationalities suggest that different goals cannot be ranked by the system, with reference to any definitive higher-level rational ideal. Thus, according to the framework, a DSS should not seek to impose a particular goal on users, but could instead

help user(s) to consider or reconsider their own goals more carefully. Reports on actual experiences to date with implementing strategic-level DSS fit well with this particular prescription. Goal-specification (ROI, Market share, Competitiveness, serving a particular stakeholder, etc.) has always in fact been the purview of the executives themselves, whilst consensus about goals has normally been a prerequisite to DSS effectiveness. The conceptual framework would predict a continuation of this aspect of DSS design and implementation.

Strategic Means

Arguments about means-rationalities (minimal, bounded, and procedural forms, etc.) suggest that a primary role of strategic-level DSS should be to overcome cognitive limitations of the user rather than optimisation of outcomes based on forecasts. Put differently, the role of the DSS should be to sharpen-up the users' mental models.

More specifically, the framework prescribes that a DSS should be designed in order to (i) facilitate a re-examination of the causal and statistical relationships understood by the user, (ii) detect and eliminate inconsistent beliefs of the user, (iii) facilite more appropriate inferences by the user, and (iv) locate and activate more relevant knowledge, as ways of improving user-rationality. This prescription, of course, also fits very well with what has been learnt to date from actual experiences with DSS. Examples are the use of the Analytic Hierarchy Process to detect inconsistencies in quantitative judgements, the use of semantic networks to expose *non-sequitors*, the development of models for measuring competitiveness in terms of actual and potential achievement throughout the organisation, and in the development of Expert Systems. None of these approaches to strategic level DSS design involve optimisation based on conditional forecasts, as in the MIS-spreadsheet approach. The proposed conceptual framework again predicts a continuation of current trends.

User-centered intuitive tasks

Finally, the framework also points to some specific issues in a strategic analysis for which at least some user-centred analysis is prescribed, involving intuition and judgement (i.e. "right-mindedness" to use a term suggested by Singer, 1981) rather than purely model-based analysis. These issues correspond to the harder metarational arguments and involve *inter alia* (i) predictions of competitors' strategic moves (ii) consideration of organisational traditions and cultures (iii) consideration of user(s) duties

and obligations (iv) anticipation of the value of some special strategic options like creating a "window" (v) assessing the reliability or truth value of a particular item of intelligence information.

7. DISCUSSION AND ALTERNATIVE APPROACHES

Previous treatments of the issue of conflicting prescriptions have been quite varied. Such conflicts have been considered paradoxical (e.g. Bowman, 1980; Wensley, 1981) and as a technical challenge (e.g. Myers, 1988; Pinches, 1982) but they have also been interpreted as manifestations of fundamental philosophical dualisms (Nooteboom, 1989) and even as desirable phenomena, in terms of their impact on organisational decision-making procedures (Mason *et al,* 1981). The present approach directly responds to the former using the language of the latter. When conflicts occur in practice, they can offer a window of opportunity for improving decision procedures, since they draw attention to the fallibility of any particular technique (model, theory or world-view). They can provide the psychological motivation as well as the political justification for digging more deeply into a strategic problem.

The conceptual framework and proposed methodology is one of several tools available to facilitate this sort of "digging". Companion methodologies such as "strategic choice" (Friend *et al,* 1987) "cognitive mapping" (Eden *et al,* 1979) and "social decision analysis" (Howard, 1975) to name but a few, could more readily bring out the detailed perceived **content** of a given strategic problem, possibly fostering commitment to a negotiated solution. In contrast, the diagnostic questions of the present methodology target the analytic models and heuristic **processes** used in decision analysis (e.g., by identifying scope for further technical analysis, or particular sources of irreducible doubts) Therefore, whilst the proposed diagnostics are rather shallow with respect to the content of any given strategic problem, they are relatively deep and focussed with respect to their roots in general meta-rational relationships.

The overall approach could also yield a theoretical payoff. At the very least, it could serve to draw attention to some potentially important relationships that are often ignored or de-emphasised in the current strategy, DSS and MS-OR literatures. Although a linkage between conflicting model-based prescriptions and metarationality has been recognised before (e.g. Morecroft, 1983) the wider scope and potential for linking multiple rationalities to strategic decisions has not yet been fully explored.

The approach might also be useful as an adjunct to contemporary empirical programmes, that are investigating relationships between alternative strategy research paradigms (e.g. Schwenk, 1988). The conceptual framework might contribute, or act as a catalyst, to theory development in this area simply by placing meta-rational arguments (which link alternative forms of rationality) alongside empirical interface research programmes (which link alternative paradigms of decision-making). Put differently, the latter empirical programmes have a rationalistic counterpart that is currently receiving little attention in the strategy literature. Equally, contemporary empirical strategic-decision research might promote new insights into what it means to be rational.

CHAPTER TWO

STRATEGY AS RATIONALITY

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1. INTRODUCTION

It has often been asked whether theories of individual rationality also apply to firms and organizations (e.g., Allison, 1971; Bryman, 1984; Levi, 1986). Organizational theorists and philosophers have tended to answer this question in the negative, thereby rejecting the notion of collective or **corporate rational agency** (e.g., Brunsson, 1982; Pennings, 1985; Elster, 1986). For various reasons, to be discussed shortly, this idea has been described as profoundly misleading, irrational, or one that "does not even get off the ground" (Elster, 1986).

Yet, rather similar notions of collective agency have a distinguished place in the general history of socio-economic ideas. In Plato's *Republic*, for example, the individual was often used as a metaphor for the nation or state; later Hobbes used the term "*sovreign*" generically, to refer both to individuals and to parliament. Later still, the neo-classical economists boldly followed suit, affording homogeneous treatment to individuals, households and firms, as actors in economic models.

Morever, several elements of rational-agency persist quite tenaciously within contemporary paradigms of strategic management and managerial planning. For example, in a review paper, Hogarth & Makridakis (1981) commented on the many "uncanny" parallels between **cognitive** dimensions of rationality and modern strategic planning and forecasting concepts. More generally, it has been noted (e.g., Bryman, 1984) that an exclusion of rationality concepts from management theory appears premature, so long as rationality itself remains an active field of enquiry. In addition, Singer (1991) commented upon some apparent parallels between problems of strategic analysis and general theories of rationality. The present paper develops the latter theme in a much more radical fashion, arguing that concepts of individual rationality and organizational strategy have now reached a critical point of convergence, or mutual confluence.

Plural rationality

Perspectives that have rejected notions of collective or corporate rational agency have all focussed rather narrowly on specified **forms** of rationality, such as the hypothetical egoist-optimiser of neo-classical economics (e.g.,Sen, 1977). Accordingly, in the following section, re-interpretations of "rationality" are put in place as the generic defence of a revised rational agency concept. Once the major anti-agency critiques are sidestepped or neutralised, the way is then open for elaborating on a

concept of the firm as a **plurally-rational-agent**. Rational-agency in strategic management then re-emerges in good shape, but like the mythical *Hydra,* with multiple heads in place of one or two.

Over **thirty** distinctive conceptions or forms of individual rationality may now be identified within the social, economic, political and cognitive sciences. These forms of rationality are outlined, together with source references, in section 3 and tables 1-7 of the present paper. With these considered collectively, as a set of rationalities, it is possible to construct a mapping or *isomorphism* between core concepts of organizational strategy and the plural rationality-set. This isomorphism, with the associated concept of corporate rational agency, carries some substantial implications for management theory, research and practice.

First, the general theory of rationality becomes identified as the latent and often-sought **prescriptive** theory of organizational strategy (e.g., Freeman, 1984) Next, rationalistic enquiry is placed directly alongside empirical strategy research, forming a very respectable and traditional partnership in the creation of knowledge. These developments are discussed in section 3 of the paper. Finally, in section 4, it is noted that the isomorphism re-casts many of the conflicts and paradoxes of strategic management as *meta*-**rational** relationships (cf. Singer, 1991). There is a large literature on the latter, which can be brought to bear on the former, offering new insights or partial solutions to mysteries of strategy **and** problems of rationality.

2. RESURRECTING AGENCY

Traditionally, objections to corporate rational-agency have revolved around such considerations as informational and cognitive limitations, Arrow's social-choice theorem, General Systems Theory and alternative political-process perspectives on strategy. Now, however, reinterpretation of "rationality" has emerged as a generic defence against all of these lines of attack, as follows:

(i) *Cognitive limits.* The neo-classical economic model has often been criticised for its implicit assumption of omniscience, or **perfect** rationality of the firm. Yet Simon's concept of **bounded** rationality (an imperfect form involving *auto*-recognition of limitations) manifestly captures individuals **and** organisations as possible agents (e.g. Simon, 1987; Hogarth and Makridakis, 1981; Schwenk, 1984). This particular form of rationality has been interpreted almost *ab initio* as applying both to individuals and to

firms; i.e. as a quite general property of cognitive systems. For example, both types of agent can be (and often have been) described as having attentional limits, some modest capacity for calculation and displaying satisficing behavior that is mediated by the application of heuristic rules. Thus the organization that is the subject of strategic management theory is at least a **boundedly** rational agent.

(ii) *Arrow's theorem.* In addition to impicit omniscience, mainstream Economic models of rational choice have also upheld well-defined preference-orderings as the *sine qua non* of rationality. However, Arrow's (1963) theorem proves that it is not possible to combine the preferences of several individuals into a single, well-defined collective preference structure. This is an obstacle for collective agency. However, Levi (1988) has now constructed an alternative theory of rational choice that does not rest upon preference-consistency. Quite the contrary, in fact: Levi's form of rationality specifically accomodates unresolved value-conflicts within the agent. Thus, inconsistency of preferences, or value-conflict, has becomes a starting point for more realistic models of individual rationality, rather than the *coup de grace* for collective agency.

(iii) *General Systems Theory:* Re-defined rationality of another sort can be invoked to counter yet another line of attack on agency, rooted in General Systems Theory. According to Ackoff and Emery (1972) the existence of **purposeful subsystems** in organizations but not individuals undermines metaphors between the two. This argument can now be turned on its (metaphorical!) head. New theories of rationality (e.g., Elster, 1986) now hold that rational individuals **do** have autonomous psychological subsystems (i.e "multiple selves"). Thus instead of using the narrowly-rational individual as a metaphor for the firm, in economic theories, complex organizations are being offered as metaphors for the individual, in psychological models. Thus the *Hydra* returns, with one more element of congruence between rationality and strategy.

(iv) *The political process model.* Power and authority have traditionally been considered as alternatives to rationality in social explanations. For example, Allison's (1971) political process model was proposed as an **alternative** to the neo-classical rational-actor model of the firm. Now, admitting politics no longer entails outright denial of rationality, as technical-rational conceptions steadily give way to new forms of rationality.

Concepts like forecasting and model-use (i.e. intensive or strong instrumental forms) and even the basic means-ends logic of traditional strategic planning are now joining forces with newer rationalities having a distinctively political element. These include: maintenance of identity and autonomy (e.g., Hargreaves-Heap, 1989) communicative action (e.g., Habermas, 1984), management of value-conflict (Levi, 1988), access-to-knowledge and inference-capability (e.g., Cherniak, 1986), realisation-of-potential (Leibenstein, 1976) and concern with fairness (Rawls, 1972), to mention but a few. These are among the strands of a growing inter-woven fabric of (plural) rationality (cf Rescher, 1988). It must now also be said that very similar concepts are among the key elements and emergent themes of contemporary strategic management research, spanning political processes and substantive decision making in organizations.

The "absent centre"

The forms of rationality (e.g., bounded, *quasi-*) shaped around "1970s" empirical studies of judgement and choice (i.e. behavioral decision theory) have subsequently influenced mainstream theory and research in strategic management and planning (e.g., Hogarth & Makridakis, 1981; Schwenk, 1984, etc.). However, in stark contrast, general theories of rationality that developed through the 1980s, have largely been ignored in modern strategy research. Thus, to paraphrase Burrell (1989), strategic management theory now suffers from "*an absent centre*", at least with respect to its prescriptive dimension. This is surely a temporary absence, a quite remarkable anomoly.

Even now, the "centre" can be implanted, simply by extending the same duality of interpretation, currently enjoyed by "1970's" rationalities, to the full (younger) family of the plural rationalities. This may be achieved by specifying a mapping, or point-by-point correspondence, between multiple forms of rationality and their core counterpart concepts in strategic management theory.

An Isomorphism

In this section, an *isomorphism*, or structure-preserving correspondence, is constructed. First, a structured **rationality-set**, $\mathbb{R}$, is described, encompassing over 30 distinctive forms of rationality (Figure 1). The structure is implanted with the relationships: "$\mathbf{r}_I$ *is a form of* $\mathbf{r}_J$" (e.g., sympathy *is a form of* extended ends rationality) and "$\mathbf{r}_K$ *has significant common properties with* $\mathbf{r}_L$ " (e.g., expressive forms and Elster's strategic-belief rationality).

The rationality-set is then placed in one-to-one correspondence with a **strategy-set**, S, comprised of key concepts in strategic management and planning (e.g., the stakeholder approach, capability-development, identity-preservation, assumptions surfacing and testing, etc.). This correspondence is made quite explicit in Figures 1 & 2.

FIGURE 1. MAPPING MULTIPLE FORMS OF RATIONALITY

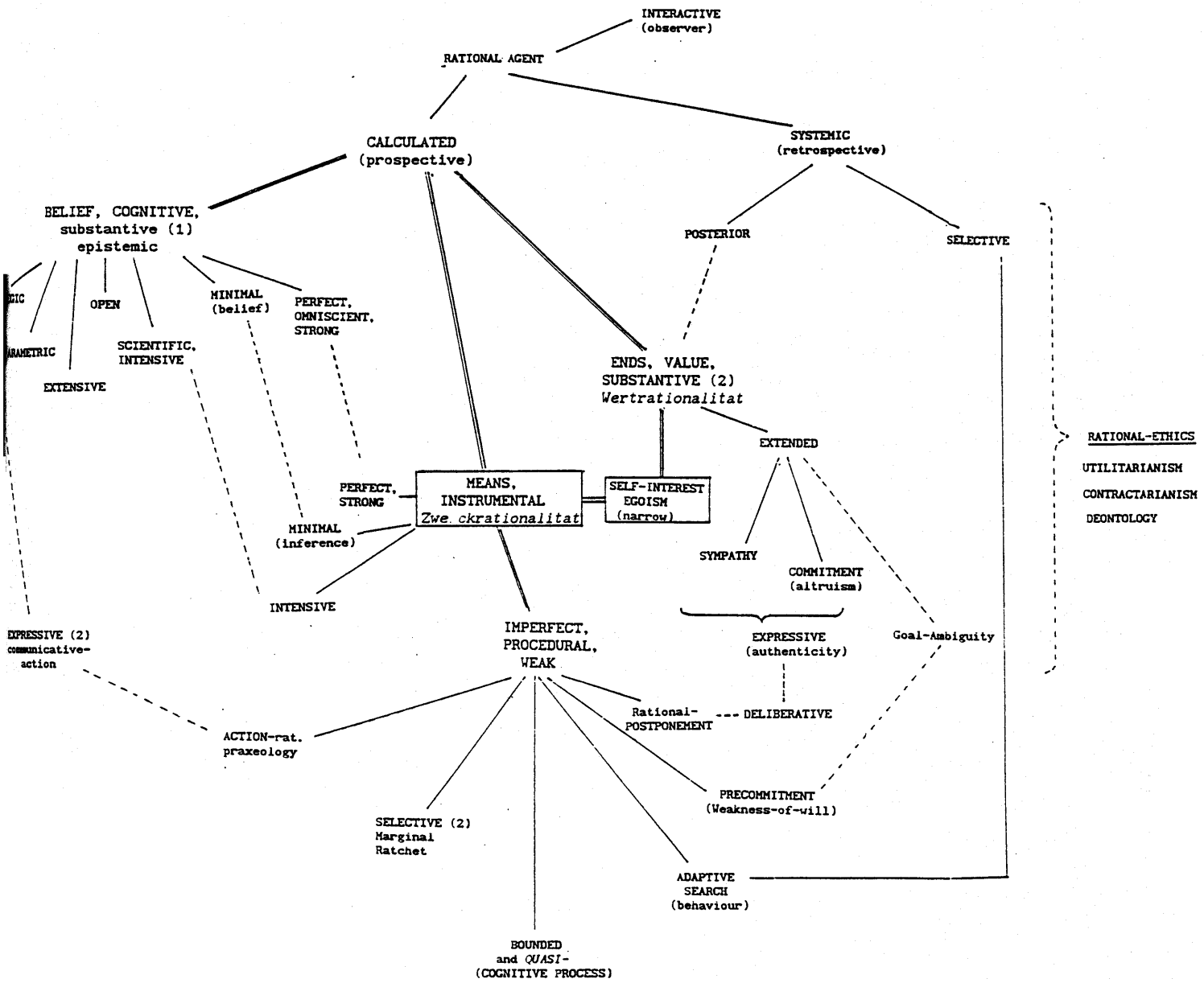
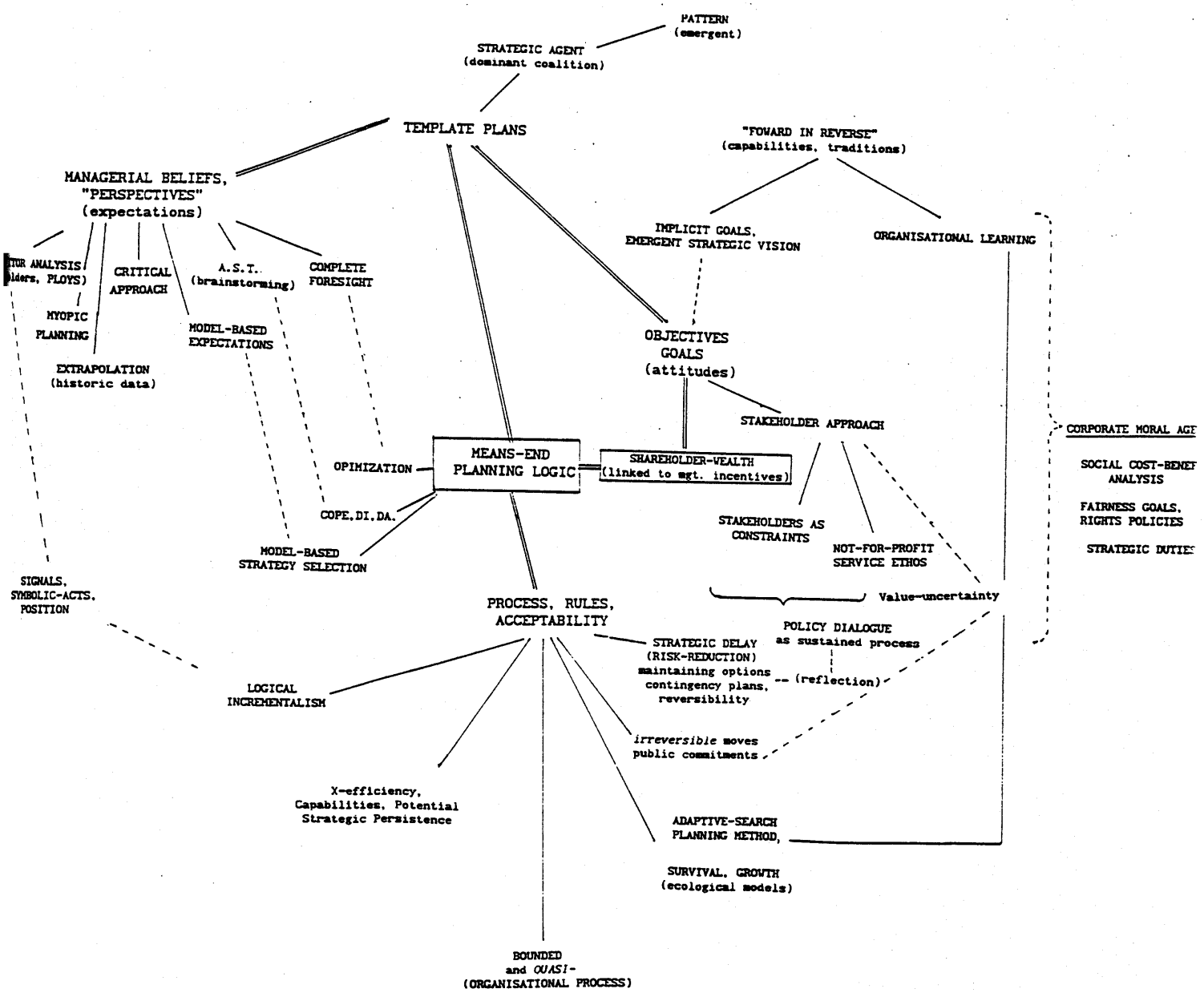


FIGURE 2. MAPPING STRATEGIC MANAGEMENT CONCEPTS



The elements of $\mathbb{R}$ and their images in $\mathbb{S}$ are listed in Tables 1-7, which are organized as follows: 1. Belief-rationalities $\Leftrightarrow$ managerial-perspectives and expectations; 2. Means-rationalities $\Leftrightarrow$ strategic decision processes; 3. Ends-rationalities $\Leftrightarrow$ corporate objectives and missions; 4. Action rationalities $\Leftrightarrow$ logical incrementalism; 5. Systemic rationalities $\Leftrightarrow$ historical contexts; 6. Rational-ethics $\Leftrightarrow$ corporate moral agency; 7. Interactive rationality $\Leftrightarrow$ predicting or diagnosing strategy.

Next, inter-relationships within the strategy-set $\mathbb{S}$ (which are frequently the subject of direct empirical investigation) are mapped onto *meta*-**rational** relationships, in $\mathbb{R}$. For example, just as STAKEHOLDERS-AS-CONSTRAINTS (Ansoff, 1965) *--is a form of* -- organizational goal-structure, so, in a corresponding sense, RATIONAL-SYMPATHY (Sen, 1977) *--is a form of--* ends-rationality. Some other examples of strategy $\Leftrightarrow$ rationality correspondences are outlined in tables 1-7 and these are briefly discussed below.

Strategy as rationality

As the above example illustrates, the isomorphism identifies particular strategic management concepts with corresponding forms of rationality and *vice-versa*. Over thirty such correspondences are set out in Tables 1-7. Rather than review all of these terms and correspondences in the space of one chapter, the following few are singled out as perhaps especially noteworthy. To start with, Mintzberg's (1987) "*5 P's of Strategy*" each correspond to distinctive forms of rationality, as follows: (i) PLANS $\Leftrightarrow$ calculated rationality, (calculation of consequences) (ii) PERSPECTIVES $\Leftrightarrow$ substantive-belief rationalities (core mental constructs, attitudes) , (ii) PLOYS $\Leftrightarrow$ strategic rationality (gaming), (iv) POSITION $\Leftrightarrow$ expressive rationality (communicative action, signalling) (v) PATTERN $\Leftrightarrow$ interactive rationality ("in the eye of the beholder").

In addition, (vi) LOGICAL INCREMENTALISM in planning $\Leftrightarrow$ "*praxis*" or action-rationality, (vii) The use of EXTRAPOLATORY FORECASTS in planning $\Leftrightarrow$ extensive belief-rationality in decision-making, (viii) DIALECTICAL INQUIRY methodology $\Leftrightarrow$ minimal-rationality, (ix) INTENDED *versus* REALISED strategy $\Leftrightarrow$ excess-of-will in rational choice. Other $\mathbb{R} \Leftrightarrow \mathbb{S}$ correspondences, together with a set of key references from which the terms are sourced, are set out in the Tables 1-7 and in Figures 1 & 2. In sum, it has now become quite apparent that the language and concepts of strategic management very closely parallel those of the plural rationalities. In a sense, strategy and rationality have even become one and the same.

Table 1.

BELIEF-RATIONALITIES ⇔ PERSPECTIVES, EXPECTATIONS

RATIONALITIES ⇔	*STRATEGIES*	*COMMENTS*
BELIEF, COGNITIVE substantive epistemic	PERSPECTIVES expectations	Objectivity, validity, realism of beliefs and expectations. SIMON 1987, MINTZBERG, 1987
STRATEGIC	COMPETITORS STAKEHOLDERS ploys	Expectations take into account competitor and stakeholder interactions. BINMORE 1987, PORTER 1980
PARAMETRIC	MYOPIC PLANS	Myopic planns, simple capital budgeting forecasts. ELSTER 1986, ARGENT1 1980
EXTENSIVE	EXTRAPOLATION historic data	Expectations are extrapolations of historic data. WALLISER 1989, MAKRIDAKIS, 1988
SCIENTIFIC INTENSIVE	MODEL-BASED EXPECTATIONS	A search for truth. Expectations based on formalised relationships. GARFINKEL 1967, FISCHOFF &GOITEN 1984
OPEN	CRITICAL APPROACH	Thorough error correction; *ex post* managerial reviews. POPPER 1989
PERFECT OMNISCIENT STRONG	COMPLETE FORESIGHT	A hypothetical ideal of full knowledge; prescience. Linked with optimisation as means. SIMON 1987
MINIMAL belief	AST brainstorming	Weakest behavioural requirements for a cognitive agent. activation of some beliefs, detection of some inconsistencies, as in AST. CHERNIAK 1986, MASON & MITROFF 1981

Table 2.

MEANS-RATIONALITIES ⇔ STRATEGIC DECISION PROCESSES

RATIONALITIES ⇔	*STRATEGIES*	*COMMENTS*
MEANS INSTRUMENTAL *Zweickrationalitat*	MEANS-ENDS PLANNING LOGIC	Select goals, find means, given current beliefs. WEBER 1947, ARGENTI 1980
MINIMAL inference	COPE, DI, DA	Making some appropriate inferences from activated beliefs. Planning techniques that facilitate activation and inference. CHERNIAK 1986, MASON & MITROFF 1981
PERFECT, STRONG	OPTIMISATION	A calculation of hypothetical optimum Assumes omniscience. SIMON 1987
INTENSIVE	MODEL-BASED STRATEGY-SELECTION	Explicit model-based strategy selection, e.g. CAPM, ICM. WALLISER 1989, ORAL 1986
IMPERFECT, PROCEDURAL, WEAK	PROCESS, RULES ACCEPTIBILITY	Response to self-recognition of cognitive limitations. Bounded rationality is one form. HAMLIN 1986, SIMON 1987
POSTPONEMENT	STRATEGIC DELAY flexibility options-maintenance	Delaying actions until situation is clearer. Similar to policy of flexibility, options-maintenance. RAWLS 1972, AAKER & MASCERENHAS 1984
PRECOMMITMENT weakness of will self-control	irreversible moves public commitments	Response to goal-uncertainty (ambiguity). Pre-empt future goal change with binding action now. THALER *et al* 1981, MARCH 1978
ADAPTIVE	ADAPTIVE-SEARCH PLANNING METHOD experiential-learning	Iterative application of decision heuristics, as information becomes available. Formalisation yields robust convergence to optima. Repetition of template approach with refined options. FLEURBAY 1988, ANSOFF 1987
BOUNDED and *QUASI*-COGNITVE	BOUNDED and *QUASI*-ORGANISATIONAL	Efficient allocation of cognitive resources. Selective attention, satisficing, heuristics. Cognitive and organisational interpretations. *Quasi*-rationaity refers to systematic (persistent, widespread) response patterns in individual choice experiments. HOGARTH &MAKRIDAKIS 1981, THALER 1985
SELECTIVE (2) Marginal, Ratchet.	X-efficiencey Capabilities, Potential, Persistence.	Rationality as pressure-constraint tradeoff. Economic theory of X -efficiency. Motivation, capabilities of agent considered. "Ratchet" refers to *status-quo* preference. LEIBENSTEIN 1976, SCWHENK 1990.

Table 3.

ENDS-RATIONALITIES ⇔ CORPORATE OBJECTIVES

RATIONALITIES ⇔ *STRATEGIES*		*COMMENTS*
ENDS, VALUE, SUBSTANTIVE(2) *Wertrationalitat*	OBJECTIVES, GOALS	Some goals (preferences, values) are rational, others are not. WEBER 1947, RAWLS 1972
SELF-INTEREST EGOISM	SHAREHOLDER-WEALTH with mgt. incentives	Own-preference satisfaction (utility maximisation) in specified market context formally yields Pareto-optimality. Basis of finance-theoretic prescriptions for value-creation strategies. ARROW &HAHN 1971, HALEY &SCHALL 1979
EXTENDED	STAKEHOLDER APPROACH	It is rational to have goals other than a narrow self-interest. SIMON 1964, FREEMAN 1984
SYMPATHY	STAKEHOLDERS AS CONSTRAINTS	Prudential regard for other's interests. The view that satisfying stakeholders constrains shareholder value-creation. SEN 1977, ANSOFF 1965
COMMITMENT (altruism)	NOT-FOR-PROFIT SERVICE ETHOS	Genuine and possibly altruistic commitment (i.e. counterpreferential choice, utility loss). Service ethos, not-for-profit mission. SEN 1977, FREEMAN 1984
Goal Ambiguity	Value-uncertainty in planning	Uncertainty or doubt about goals (preferences, values). Absence of ideal or meta-preference. Value -uncertainty (UV) in strategic planning. MARCH 1978, FRIEND & HICKLING 1987
DELIBERATIVE	FORMULATING OBJECTIVES reflection	Reflecting on own-preferences to reduce ambiguity. Policy dialogue, establishing goals. RAWLS 1972, QUINN 1977
EXPRESSIVE (authenticity)	POLICY DIALOGUE as process	Active sense of self-management , or authenticity, achieved through the process of ambiguity reduction. Existentialism. Analogous to continuous policy dialogue, *Ringi* method of participative corporate decisions. HARGREAVES-HEAP 1988, PUCIK & HATVANI 1983.

Table 4.

ACTION RATIONAITIES AND STRATEGIC BEHAVIOUR

RATIONALITIES ⇔	*STRATEGIES*	*COMMENTS*
ACTION-rat. *praxeology* practical-rat.	LOGICAL INCREMENTALISM	Rational action, *praxeology:* implementing a theory, or strategy. Selective attention to content and process. BRUNNSON 1982, GLADSTEIN & QUINN 1985
EXPRESSIVE (2) Communicative-action	SIGNALS, SYMBOLIC ACTS, POSITION	Actions are primarily symbolic, not instrumental. Establish and reinforce identity or reputation. e.g. finding and defending a *niche.* HARGREAVES-HEAP 1988, MINTZBERG, 1987

Table 5.

SYSTEMIC RATIONALITIES AND HISTORIC PROCESSES

SYSTEMIC	"FORWARD-IN-REVERSE" capabilities	Knowledge and behavioural rules accumulate over time. Goals emerge. Rationality is historical. MARCH 1978, HAYES 1985
POSTERIOR retrospective	IMPLICIT GOALS, EMERGENT VISION	Goals (values, preferences) flow from actions and their consequences (deliberation, cognitive dissonance). Goals are not *ex ante;* strategic vision emerges from achievements. MARCH 1978, HAYES 1985
SELECTIVE	SURVIVAL, GROWTH-TO-OPTIMUM. ecological-models	Behavioural rules, traditions, validated by survival and growth of the agent, as in ecological models of organisational strategy. MARCH 1978, BETTON & DESS 1985

Table 6.

RATIONAL-ETHICS AND CORPORATE MORAL-AGENCY

RATIONALITIES ⇔	*STRATEGIES*	*COMMENTS*
UTILITARIANISM	SOCIAL COST-BENEFIT-ANALYSIS	It is rational and ethical to seek and produce "the greatest good for the greatest number". Social cost-benefit analysis. MILL (1962), PREST & TURVEY 1965
CONTRACTARIANISM	FAIRNESS-GOALS, RIGHTS-POLICIES	It is rational and ethical to act with and to promote fairness and justice. Corporate policies to stakeholders should be based on fair treatment. RAWLS 1972, FREEMAN 1984
DEONTOLOGY	STRATEGIC DUTY	Performance of duties and respecting rights is paramount in rational-ethical; behaviour. The corporation is "a guest in society". KANT (1948), GOODPASTER 1988.

Table 7.

INTERACTIVE VIEW : PREDICTING, DIAGNOSING STRATEGY

INTERACTIVE observer	PATTERN emergent	Rationality and strategy are both in the eye of the beholder. Strategy is an observed pattern in a stream of decisions. ACKOFF 1983, MINTZBERG 1987

3. PLURAL-RATIONALITY AND STRATEGIC ANALYSIS

This *isomorphism* between a rationality-set, $\mathbb{R}$, and a strategy-set, $\mathbb{S}$ sheds new light upon the strategic management process, particularly its prescriptive dimensions. It also contributes something to the general theory of rationality. As a practical bonus, the implied view of the firm as a plurally-rational-agent yields some new techniques for strategic analysis. These developments are outlined in the remainder of the paper.

Theoretical perspectives

(i) *Agency.* The strategic-entity entity (i.e. player, firm, organization, dominant coalition, planning unit, CEO, "brain of the firm" etc.) is reconstructed as a **plurally-rational-agent.** The concepts of plural-rationality and strategic management appear co-extensive. They manifestly share the same salient features and they grapple with the same universal problems of human action, decision and behaviour in a socio-economic context. So, strategy and rationality are **extensionally** equivalent: in that sense at least strategy **is** rationality. What else could it be? The onus now seems to lie with detractors to identify where the two concepts really differ, if at all.

(ii) *Prescription.* There is a deep, strong undercurrent favouring prescriptive approaches in strategic management research (e.g., Camerer, 1985; Freeman, 1984). Moreover, in practice, strategic level managers often seek advice about what they **should** do...mostly, if not entirely, on behalf of the whole organization (e.g., Ansoff, 1987). This search for prescription in strategic management does not sit at all comfortably with rejections of corporate rational-agency, since all prescriptions for action on behalf of the firm as a whole (i.e. strategic management) are necessarily grounded in **some** form of rationality. The present concept of the firm or organization as a plurally-rational-agent effectively solves this conundrum.

(iii) *Empirical Programs* Rationalistic enquiry, previously rather neglected, is now placed directly alongside empirical investigation in strategic-management research. This echoes some current trends in related disciplines (e.g., Hargreaves-Heap, 1989) and simply re-affirms the historic partnership between rationalism and empiricism in the creation of knowledge.

Findings from **empirical strategy** research could now take on additional significance, as they could be used to elaborate on concepts of **rational** decision and action. For example, studies of (corporate) competitive and co-operative behaviour (e.g., Neilsen, 1989) might yield anchoring points for

quite general theories of gaming between boundedly-rational agents. Similarly, empirical **interface** programs (e.g., Schwenk 1988; Hitt *et al*, 1991) that investigate relationships between strategy paradigms, potentially inform (and could be informed by) their corresponding *meta*-rational arguments (cf. Singer 1991). Previously, empirical evidence of **individual** behavior has been used to shape new concepts of rationality (e.g. *quasi*-rationality); now organisational evidence might perform a similar function. This idea is explored further in section 4.

(iv) *Conflicting analyses.* Paradoxes and conflicting prescriptions for strategic management decisions may now be recast as *meta*-rational enquiries (cf. Singer, 1991). Under the isomorphism, the problems in $ are represented in ℝ as *meta*-rational arguments. In some cases this yields new insights and partial solutions. *Meta*-rational arguments can contribute to understanding strategy; but contributions in the reverse direction may also be identified, where knowledge about strategy seems to inform theories of rationality. These are also discussed more fully in section 4.

Techniques of strategy analysis

A synthesis of rationalistic and empirical approaches can serve the practical knowledge requirements of strategic-level managers. These knowledge requirements extend beyond empirical findings and statistical relationships (e.g., PIMS studies, etc). to include the reasoning processes, motivations and complex *rationales* that are theselves the very substance of the general theory of rationality. Accordingly, plural-rationality could be used to underpin strategic-decision-aids.

The idea of shaping decision techniques around particular conceptions of rationality is certainly not new. Most management decision techniques rest on latent assumptions about the nature of rational choice. Capital budgeting techniques (e.g., present-value) implicitly assume known goals and near-omniscience; whilst strategy heuristics or marketing "boxes" (e.g., Wensley, 1981) implicitly assume imperfect forms. The *hyper*gaming technique of Bennett & Huxham (1982) is also distinctive, in this respect, combining elements of cognitive and strategic-belief rationalities in a novel way.

Plural-rationality can also be invoked as the underpinning of simple strategic analysis techniques. First, the *SCIO* method may be used to structure the decision making process around normative considerations flowing from the plural rationalities. Next, a variant of *SCIO* enriches the strategic intelligence process by viewing competitor organizations as

plurally-rational agents. Finally a set of simple diagnostics may be derived from *meta*-rational arguments, that can be used to resolve conflicting model-based prescriptions or to routinely qualify model-based analysis.

(i) *The "SCIO" method*

The SCIO method (described in Singer *et al,* 1987 and Singer 1992) expands the traditional scope of strategic-option evaluation. "SCIO" stands for *Specifying Canonical Issues and Options.* The central idea is that these issues and options may be **identified** and then **classified** with deliberate reference to each form of rationality, in turn. That is, the plural rationalities may themselves be used like a checklist, or mnemonic.

To illustrate, in the context of politicised corporate **divestments** by MNC's, issues in the policy debate were classified: as "corporate-egoist" (i.e. direct commercial) "corporate-sympathy" (i.e. stakeholder) and "purely ethical". The latter category facilitated identification of specific ethical issues such as relativism and clean-hands, placing them alongside more familiar commercial arguments like "appeasing consumer groups" (sympathy) or "avoiding management hassle" (egoist).

Similarly, in the **acquisitions** decision context, SCIO systematically draws attention to hidden normative issues like the traditions and sense of identity of the target firm (systemic, expressive forms), the role of bluffing, model-use (strategic, intensive forms, etc.). These are placed alongside more conventional planning considerations, such as forecasts of combined market-power and E.P.S.

The resulting decision process is more inclusive or **continent** (cf. Davidson, 1980) with respect to the fullest possible range of normatively relevant issues. Conventional approaches to strategic option-evaluation are quite myopic by comparison with SCIO. Planners using conventional strategic and financial techniques are in effect "choosing their own rationality". Put differently, they are selectively attending only to a subset of the issues that have **normative** relevance, according to contemporary theories of rationality.

(ii) *SCIO- 2, Competitor Analysis*

An adaptation of SCIO yields a new qualitative methodology for competitive analysis (Singer, 1992). Put simply, a view of **other** organizations as plurally-rational-agents can enrich interpretations of the observable historical facts. A competitor's position, cost-structures, power relationships, management profiles, may be coupled to other considerations

flowing from the plural rationalities: identity preservation, communicative actions, precommitments, cognitive resources, core-belief-structures and myopic "blind spots". It is quite simple to compile a list of diagnostic questions for competitor-analysis, by referring systematically to the plural rationalities.

(iii) *Diagnostics and meta-rational arguments*

Diagnostics derived from *meta*-rational arguments can be used to resolve conflicting model-based strategy prescriptions (Singer, 1991). These diagnostics can also be used for routinely qualifying model-based strategy evaluations (e.g.,*ex-ante* financial appraisals). Examples are: "which causal or statistical relationships have been employed?", "Have multilateral (game theoretic) situations been identified?", "Is corporate tradition or culture a factor?", "Do subjective probabilites reflect sufficient knowledge?".

4. META-RATIONALITY AND STRATEGIC MYSTERIES

The latter diagnostic technique is based upon the idea that conflicting model-based strategy prescriptions can be partially resolved with reference to corresponding *meta*-rational arguments. A modest expansion of this idea sheds light on mysteries of strategic management, by recasting them as equivalent problems of rationality. Thus, strategy is potentially informed by *meta*-rational insights. And *vice-versa:* strategy research can contribute to theories of rationality, as follows.

Meta-rationality ⇒ strategic mysteries

Some examples of *meta*-rationality informing strategy are briefly outlined in this section. These include the optimal strategy problem, expressive strategies, strategic timing, adaptive search strategy and not-for-profit commitments.

(i). *Optimal-strategy.* The "**optimal rationality problem**" (Marsh, 1978) concerns balancing calculated forms against rule-based forms (selective, procedural). The Achilles-heel of the former is the non-forecastability of complex social systems (e.g, MacIntyre, 1984; Makridakis, 1988), whilst that of rule-based forms is found both in the limited amount of experience summarised and in the degree of similarity between past and current contexts. Given current understanding of rationality, this balancing problem demands a **judgemental** resolution.

Strategic-level managers can sometimes confront a corresponding "**optimal-strategy problem**" of balancing organizational traditions and policy principles against *ex ante* financial calculation. For example, In the evaluation of strategic acquisition proposals, traditions of internal development (quite common in Japanese corporations) frequently confront positive-NPV or favourable EPS-growth projections. The tension or conflict between the associated prescriptions is no more than a surface manifestation of the corresponding *meta*-rational argument.

A variant of this optimal-strategy problem is found in the rather mysterious "foward-in-reverse planning logic" prescribed by Hayes (1985) in a seminal article on corporate strategy. In that article, Hayes instructed management to delay goal-setting until organizational capabilities have developed and strategy has emerged. This directly violates conventional goal-setting philosphies (i.e. *'if you don't know where your going...'*). The relationship (in $\mathbb{S}$) between these opposite "planning logics" may now be understood as the calculated-*versus*-systemic *meta*-rational argument (in $\mathbb{R}$).

(ii). *Non-instrumental, expressive strategies.* Considerations of corporate **autonomy** and **identity** can sometimes drive corporate investment. For example, case studies strongly suggest that such entrepreneurial projects as the Federal Express "Zapmail" project, the Hughes Aircraft Corp. "Spruce Goose" and the Anglo-French Concorde SST, were not driven by calculations of anticipated profits. In any case, such calculations would have been highly unreliable, since they were exploring the unknown. The strategic investments are, however, quite readily understood in terms of **expressive** rationality (e.g., Hargreaves-Heap, 1989) as symbols of corporate capability, or as steps in a (rational) search for positive-freedom or self-realisation (of the organization).

A *meta*-rational argument now tells us that such strategies absolutely defy attempts at conventional risk-return analysis: expressively-rational actions **cannot** be reduced to calculated forms of rationality, since the former places intrinsic value on experimentation with preferences or goals, rather than taking goals as given. That is, expressive considerations resist utility-theoretic formulation (Hargreaves-Heap, 1989).

(iii). *Strategic Timing.* **Postponement** (i.e. do nothing, stay quiet, keep options open, maintain flexibility) is one possible rational response to **environmental-uncertainty**, since it allows unforecastable events to unfold until the situation is clearer (e.g. Rawls, 1984). Equally, **pre-commitment**

(immediate self-binding action) is another rational response to **value-uncertainty**. Therefore, where both types of uncertainty co-exist, as is often the case in strategic planning (e.g., Friend and Hickling, 1987), conflicting prescriptions flow directly from alternative forms of rationality. Since pre-emption cannot be reduced to a form of postponement (a *meta*-rational argument) the timing of strategic moves remains a conundrum, or mystery of strategy.

(iv) *Strategic sympathy and commitment.* Rational-**commitments** are not reducable to **sympathy** (Sen, 1977). The former involves counter-preferential choice or utility loss, the latter is enlightened self interest that includes psychological feelings of empathy. Under the isomorphism, rational-commitments correspond to not-for-profit corporate missions, whilst rational-sympathy corresponds to a stakeholders-as-constraints strategy.

The *meta*-rational argument implies that these strategies are both rational yet fundamentally different. Strategic commitments permit loss of managerial utility, in service to a stakeholder cause (be it community welfare or shareholder wealth). More generally, the rationality-set (ℝ) includes many, but perhaps not all principles of normative **ethics**. *Meta*-ethical arguments imply that moral **intuitions** could comprise a distinct and seperate dimension of strategy, not entirely reducible to plurally rational analysis.

Strategy ⇒ rationalities

Strategy research could also contribute to an understanding of philosophical problems of rationality. Decision-contexts that arise in the strategic management of organizations offer a rich, but so far under-utilised source of empirical anchoring points. These include aspects of competition, identity-preservation and incrementalism

(i) *Competition.* Traditional game theory implicitly assumes neo-classical rationality of the players, with consistent preferences for the formal game outcomes. On the other hand, experimental gaming, in economics (e.g., Plott, 1982) and psychology (e.g., Colman, 1982), involves individuals as players. However, evidence of competitive interactions between firms or organizations could **also** provide empirical anchoring points for game-related theories of competition. Thus, for example, empirical studies of competitive organizational behaviour could test hypotheses about gaming between imperfectly-rational agents.

(ii) *Identities.* In the strategic acquisitions context, preservation of identity and autonomy often assumes an over-riding importance for the organization. Yet dynamic game simulations (Axelrod, 1984) also indicate that a failure to preserve identities could be irrational. It damages the overall market ethos, with negative overall consequences. Thus, the role of identity in the strategic acquisition context could be used to illuminate a hitherto concealed linkage between strategic-beliefs (gaming) and expressive rationality (cf. Singer 1988).

(iii). *Imperfect action strategies.* There is a large literature on the *meta*-rational problem of decision *versus* action rationalities. Instumental rationalities involving formal model-use and *hypothetico-deductive* reasoning, are contrasted with the cognitive processes that mediate effective social action (e.g., Garfinkel, 1967; Cohen, 1981). Yet the corresponding **strategy** conundrum is equally well-documented. It places logical incrementalism (Quinn, 1982) or action-rationality (Gladstein and Quinn, 1985) relative to traditional, formalised **corporate** planning. Logical incrementalism directly conflicts with formal logic in the strategic management process. For example, the latter mandates the search for information to *dis*-confirm hypotheses, whilst incrementalism prescribes a search for biased anecdotes (e.g., Schwenk, 1984). One supports techniques like devils-advocacy, whilst the other recommends suboptimal alternatives, for the sake of organizational politics, etc.

The strategy context suggests one possible resolution of the *meta*-rational problem, based upon **selective attention** and **multiple game playing**. The strategic manager attends, selectively, to a wide range of substantive issues whilst, at the same time, playing multiple simultaneous games. These games, each with multiple solutions and paradoxes, include (a) jostling for personal position within the dominant coalition, (b) the strategic-level *versus* subordinates (a prisoner's dilemma), (c) the strategic entity now *versus* itself in the future, (d) the dynamic game with external stakeholders and competitor firms. Strategy research in general confirms the obvious: that strategic managerial behaviors such as signalling, consensus building and suboptimisation are well suited to this type of socio-economic environment.

5. CONCLUSION

The mapping set out in Figures 1 & 2 and Tables 1 - 7 depicts an isomorphism between the plural rationalities and core concepts of strategic management. The firm, organization or strategic-entity (i.e. the subject of

strategic management theories) is identified as a plurally rational agent (i.e. the subject of theories of rationality). This perspective is quite radical but it has several advantages. It explains and justifies the prescriptive dimension of strategic management theory, whilst it places rationalistic enquiry directly alongside empirical approaches in strategy research. It also enables some of the mysteries of strategic management to be re-examined with reference to their equivalent problems of rationality, and *vice-versa*. As a bonus, it provides a foundation for some new techniques of strategic analysis.

It is historically apparent that management theories and techniques have trodden the paths laid down in economic theory and the other social sciences. Therefore a renewed attention to rationality is a now a rather natural and timely development for management research. The multiple-headed *Hydra* of corporate-rational-agency could return, as of old, to replace the absent centre of the strategic management discipline.

CHAPTER THREE

STRATEGY AS MORAL PHILOSOPHY

Currently at the revision stage with the *Strategic Management Journal*

1. INTRODUCTION

Looking back over the last couple of decades of management theory and the related social science disciplines, perhaps three *macro* trends stand out above all others. First, the subject of **Business Ethics** has emerged as an almost equal partner with the traditional, functionally-oriented management subjects; second, the subject of **Strategic Management** has consolidated its status as an integrative but distinctive contribution, concerned with management of the enterprise as a whole. Finally, in the source social sciences themselves, there has been a powerful resurgence of interest in the once-shunned subject of **Rationality**. Articles and books on that subject have proliferated rapidly, both in Economics (e.g. Sugden, 1991, Hargreaves-Heap, 1991) and in Psychology (e.g. Kahneman, 1991) as well as in the disciplines of Political Science, Sociology and Philosophy (e.g. Hamlin, 1988; White, 1988; Elster, 1986).

How are these three *macro* trends related? First, consider strategy and ethics: at one level, links between strategic management and business ethics are perfectly obvious, as the two subjects share many specific topics in common. For example, mergers & acquisitions, competitive intelligence gathering, developing organizational culture, environmental policy, etc. all have a place in Strategy courses as well as in Business Ethics courses. At another level, the strategy-ethics relationship is rather more theoretical, focussing on a concept of the corporation as a "moral person", analagous to the legal-person concept. Philosphers have often asked whether or not it makes sense to apply ethical theories to corporations or other collectives (e.g. Goodpaster *et al,* 1982; Werhane, 1983; French, 1984; Rankin, 1987). The level of academic interest in this question has risen broadly in tandem with the emergence of Business Ethics as a distinctive discipline. Whilst some have seen **corporate moral agency** as the *sine qua non* of business ethics; the bottom line, as it were, of all the other philosophical arguments about morality in business contexts, others have taken the opposing position that only individual managers can be the locus of morality.

The second leg of the triad, the strategy-rationality relationship, has also been a subject of much controversy, with strong differences of opinion about the relevance of rationality, in its various forms, to general management theory and practice (e.g. Brunsson, 1982; Mintzberg, 1990; Ansoff, 1991). This has also been framed as a dispute about whether or not it makes sense to view a firm or organization as a unified rational-agent, similar in at least some senses to an individual rational person (e.g.

Arrow, 1963, Levi, 1986). "Rational agent", in this context simply means any entity to which the general theory of rationality applies. As discussed subsequently in this article, some broad pathways to resolving the controversy about **corporate rational agency** have already been laid down.

Finally, what of the third leg, that is, rationality in relation to ethics? This philosophical problem certainly pre-dates the other two; it is now the subject of numerous *meta*-rational and *meta*-ethical arguments, searching for the foundations of ethics and morality in formal reason and logic. Recently, there has been much progress on this issue, associated with developments in game theory and decision theory (Mackie, 1978; Axelrod, 1984; McClennan, 1990). Noting the underlying direction of these developments, the philosopher Williams (1985) has commented that, "It might turn out (that) we are committed to an ethical life ...because we are rational agents". Taken together, the three *macro* trends are now pointing the way towards a new theoretical perspective; one that is quite radical, but is nonetheless capable of being operationalized for practical managerial purposes. The new perspective sees that the latent, general **prescriptive** theory of strategic management is nothing other than contemporary Moral Philosophy, with the corporation cast as a moral agent. In this way, the subjects of Strategic Management and Business Ethics can now be brought much closer together.

Structure of this chapter

First, the conceptual framework of "Strategy as Rationality" set out in the preceding chapter is briefly revisited and presented in a more formal manner, together with a rather more detailed discussion of the various $\mathbb{R} \Leftrightarrow \mathbb{S}$ correspondences that involve goals and ends-rationalities. The latter are especially pertinent to ethics and moral-agency. Next, the strategy-as-rationality framework is then extended to a new viewpoint that sees "Strategy as Moral Philosphy", with an accompanying defence of the implied concept of corporate **moral** agency (**CMA**). With the extended framework of moral-agency in place, it then becomes possible (in section 4 of the paper) to develop a broader conception of what corporations should do, or what strategy should be. Put differently, prescription in strategic management may now be extended far beyond its traditional Economic orientation.

This structure may be summarised quite succinctly, as follows:

(i) *"Strategy as Rationality"*: In the preceding chapter, an *isomorphism* between a set of strategy-concepts, $\mathbb{S}$, and a set of rationality-concepts, $\mathbb{R}$, was set out and is now elaborated and formalised.

(ii) *"Rationality as Ethics"*: Some of the many pathways from a plural conception rationality to principles of ethics or Moral Philosphy are briefly traced out.

Then, taking (i) and (ii) together, leads directly to *"Strategy as Moral Philosphy"*. This position, in turn, requires a defence of corporate moral agency (**CMA**) and this is duly offered in section 3 of the chapter.

In section 4 of the paper, **prescription** in strategic management is re-interpreted, in a way that explicitly integrates Ethics with Strategy. Three applications of the new framework are outlined in section 4. First, *meta*-rational and *meta*-ethical criteria are used to and classify and evaluate strategy concepts, such as: *stakeholders-as-constraints, competitive analysis*, etc. A similar approach is then applied to formal strategy models such as BCG (Day, 1986) and CAPM (Naylor *et al*, 1982), etc. Finally, some of the enduring mysteries of strategy, such as timing, identities and sunk costs are recast as rational-moral dilemmas to which Moral Philosophy now potentially offers some solutions.

2. STRATEGY AS RATIONALITY

The main elements of the conceptual framework that sees "Strategy as Rationality", were set out in the preceding chapter (Singer 1992a). In short, each distinctive form of rationality, in $\mathbb{R}$, corresponds with a strategy concept, in $\mathbb{S}$, whose meaning is either the same, or very, very similar. In extending this framework towards one that sees strategy as moral philosphy, the particular $\mathbb{R} \Leftrightarrow \mathbb{S}$ correspondences involving ends or **goals**, are especially pertinent. As compared to theories of rationality, ethics pays even closer attention to questions about goals. The (Weberian and Rawlsian) notion that rationality has something to do with the choice of goals, as well as means to achieve them, are now quite clearly echoed in modern strategic management theories, as follows:

1. RATIONAL-EGOISM $\Leftrightarrow$ SHAREHOLDER-VALUE-CREATION. Egoism involves satisfying one's own preferences (i.e. utility maximisation). If this is set in carefully specified market contexts, it formally yields Pareto-optimal outcomes. This result is at the heart of the normative theory of shareholder value-creation. Assuming appropriate managerial reward and incentive structures are in place, the two concepts, egoism for individuals and value-creation for firms, are very similar; in terms of their origin and their ethical justification.

2. RATIONAL-SYMPATHY ⇔ STAKEHOLDERS-AS-CONSTRAINTS. Extended forms of ends-rationalities correspond with the general stakeholder approach in strategic management. Both flow from the idea that it is rational (right, good) to have other goals in addition to self-interest, or shareholder value-creation, respectively. The "sympathy" form of extended individual rationality (Sen, 1977) correponds precisely to Ansoff's (1965) stakeholders-as-constraints position. Both see that serving others interests is prudential and pragmatically necessary, *en route* to achieving egoist goals in the longer term.

3. RATIONAL COMMITMENT ⇔ NOT-FOR-PROFIT. In contrast, Sen's rational commitments by the individual involve counter-preferential choice, genuine utility loss, or altruism. This corresponds to the special ethos of a not-for-profit organization. In these cases, there is an over-riding (but rational) commitment to a non-financial cause (e.g., health provision, providing employment, aesthetics, etc).

These forms of ends-rationality progressively increase in sophistication. The next level of complexity moves beyond attempts to specify rational goals, towards an emphasis on the processes of goal formulation. These more complex notions of ends-rationality recognise ambiguity (e.g., Marsh, 1978) and the absence of universal ideals for rational choice. Doubt or ambiguity about goals is a central problem for individual rationality (e.g. Marsh, 1978), as it is for organizational strategy and planning (e.g. Friend *et al* 1978), accordingly we have:

4. DELIBERATIVE RATIONALITY ⇔ FORMULATING GOALS. The Rawlsian notion of a rational individual deliberating on goals corresponds to the concept of a policy dialogue, or the political and organizational process of goal formulation under ambiguity (e.g. Quinn, 1977).

5. EXPRESSIVE RATIONALITY ⇔ CONTINUOUS GOAL PROCESSES. In the absence of a definitive goal, the search for individuals' goals is continuous and important, or rational, in its own right. It underpins a person's sense of autonomy (self management) which is of ultimate value, beyond what is normally considered as "wealth". This applies to the expressively rational individual (Hargreaves-Heap, 1989) as it does to "rational" organizations (e.g. the *Ringi* process, that symbolises organizational autonomy and identity).

6. SYSTEMIC (POSTERIOR) RATIONALITY ⇔ EMERGENT STRATEGIC VISION In contrast with calculated means-ends logic, systemic forms of individual rationality explicitly involve history. In particular, posterior

rationality (e.g., Marsh, 1978) refers to the emergence of individual goals, over time, as a historical process. This form or rationality corresponds to the "ways-means-ends" recipe (or "logic") for competitive organizational strategy, set out in a seminal article by Hayes (1985). Just as a rational person's goals emerge over time, as a function of historical experience and capabilities, so does the strategic vision of the firm.

7. ETHICAL REASONING CATEGORIES ⇔ STRATEGIC TYPOLOGY. Finally, each of the major approaches to **ethical** reasoning lends itself directly to a distinctive corporate policy (Freeman, 1984). Utilitarianism in ethics corresponds to the use of social cost-benefit analysis in strategic choice; Contractarian or Rawlsian "strategies" (Freeman, 1984) are ultimately driven by concerns of fairness and justice. Some organizations exist specifically to promote these ideals. Deontological or Kantian strategies recognise corporate duties, or simply "doing what is right", even in situations where this runs counter to mainstream commercial considerations (Goodpaster, 1988; Singer *et al*, 1987). The issue of politicised divestments by MNC's exemplifies this situation.

In sum, the language and conceptual foundations of strategic management theory very closely parallel those of the plural rationalities. This is surely no coincidence. It may explained by the simple observation that both sets of concepts ($\mathbb{R}$ and $\mathbb{S}$) are grappling with quite universal problems of action, decision and behavior, set in socio-economic contexts.

Isomorphism

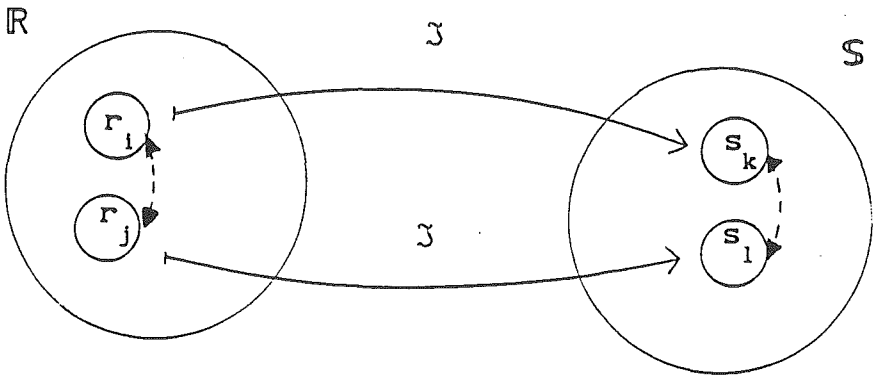
A more complete synthesis of strategy and rationality may be achieved by considering the implied 1 : 1 correspondence beteen $\mathbb{R}$ and $\mathbb{S}$ as an *isomorphism,* a structure-preserving map, as first dscribed in the preceding chapter. More formally, a structure of isomorphism may be implanted in $\mathbb{R}$ (and hence in $\mathbb{S}$) using two types of *meta*-**rational** relationship:

(i) " r_i *is a form of* r_j ". For example, **sympathy** ...*is a form of*... **extended-ends-rationality**.

(ii) " r_k *has significant common properties with* r_l", for example, **expressive** rationality (which concerns communicative action like signalling)...*has significant common properties with*...Elster's (1986) **strategic-belief** rationality (which is concerned with game-theoretic interdependencies).

The relational structure in $\mathbb{S}$ is similar, and is preserved (or, in some cases implanted) using the structure-preserving $\mathbb{R} \Leftrightarrow \mathbb{S}$ isomorphism. (Figure 1.)

FIGURE 1. THE CONCEPT OF ISOMORPHISM BETWEEN $\mathbb{R}$ AND $\mathbb{S}$.



$\Im \times \Im \; (r_i , r_j) \longmapsto (s_k , s_l)$, for some k, l.

r_i ...*is a form of* ... r_j

s_k ...*is a form of* ... s_l, in a similar sense.

Corresponding to (i) & (ii) in $\mathbb{R}$, we have (i)* and (ii)*, in $\mathbb{S}$, as relationships between their respective *images*, as follows:

(i)* **Stakeholders-as-constraints** (Ansoff, 1965)...*is a form of* ...**organizational goal system.**

(ii)* **Positioning** is an ingredient of organizational strategy (e.g. Mintzberg 1987). This strategy-concept ..*has significant common properties with*...**signalling behaviour.**

In these examples the relational structures in $\mathbb{R}$ and $\mathbb{S}$ are preserved. In other cases the mapping, considered as an ismorphism, uncovers or hints at relationships within $\mathbb{R}$ and $\mathbb{S}$ that have not yet received much attention in the respective literatures (Singer, 1991 and 1992a). The pattern of reasoning illustrated by these two examples may be made *quasi*-formal, as

follows:

Let (r_i, r_j) be any pairwise relationship in $\mathbb{R}$, that is a *meta*-rational relationship like those described above. The mapping:

$$\Im: \mathbb{R} \Rightarrow \mathbb{S} \text{ gives:}$$

$$\Im(r_i) = s_k \quad \text{and} \quad \Im(r_j) = s_l \quad \text{for some } k, l.$$

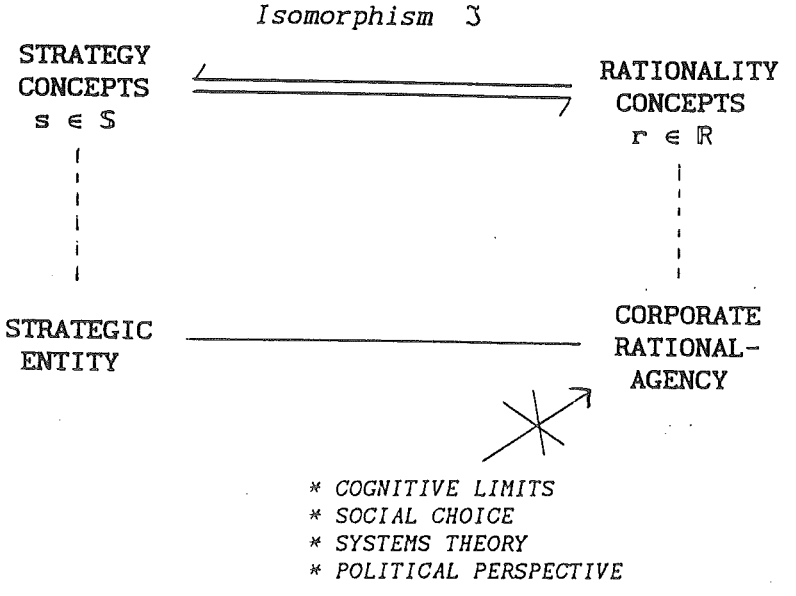
Then, for all i, j, we have :

$$\Im \times \Im(r_i, r_j) \Leftrightarrow [\Im(r_i), \Im(r_j)] = (s_k, s_l), \quad \text{for some } k, l.$$

The latter pairwise relationship in $\mathbb{S}$ is an *interface* relationship between a pair of strategy concepts. Expressed in words, "all forms of rationality have their counterpart strategy concepts, whilst the strategy *interface* concepts reflect the *meta*-rational relationships". That is, $\Im$ is an isomorphism, or structure preserving map that identified $\mathbb{R}$ and $\mathbb{S}$ as essentially the same thing.

An $\mathbb{R} \Leftrightarrow \mathbb{S}$ isomorphism specified in this way effectively demonstrates that the concepts of strategic management and plural rationality are co-extensive, with similar meaning and scope. "Strategy" and "Rationality" are **extensionally** equivalent, as concepts, because they share the same salient features. Put differently, strategy IS rationality. What else could it be? Only the identity of the **agent**, or actor, differentiates between the two concepts (Figure 2.).

FIGURE 2. ISOMORPHISM AND CORPORATE-RATIONAL-AGENCY



For concepts in $\mathbb{R}$, the agent is normally the individual person, or a particular cognitive system. For concepts in $\mathbb{S}$, the firm or organization *as a whole* is the primary candidate for the agent (Ansoff, 1987). Moreover, as explained in section 2 of the preceding chapter, the various arguments opposing the concept of the corporation as a rational agent (i.e. *cognitive-limits, social-choice, systems-theory, political-perspective*) are now quite vunerable to the new interpretation involving the *plural* rationality of the strategic entity.

3. STRATEGY AS MORAL-PHILOSOPHY

If Strategy and Rationality are both broadly concerned with problems of action, decision and behavior set in socio-economic contexts, then so too is ethics and the broad discipline of Moral-Philosophy. Accordingly, the rationalities $r \in \mathbb{R}$ are intertwined with almost all of the major approaches to ethical reasoning, such as Teleology, Deontology and Contractarianism. In addition, recent developments in game-theory map out quite new pathways from the assumed rationality of players to their *de facto* morality.

Teleological, or consequentialist ethics (*utilitarianism, egoism*) are associated with instrumental rationality, or choosing means to achieve known goals. These include "pursuit of self-interest" (egoism) and "the greatest good for the greatest number" (utilitarianism). The rationality-ethics linkages here are quite transparent. According to De George (1990, p 44) "A **rationally** operated company tries to maximise its good and minimise its bad." (i.e. corporate-egoism) whilst utilitarianism "describes what **rational** people do in making moral decisions". It is also a description of what rational organizations do when they conduct a full socio-economic cost-benefit analysis. Perhaps, then, the only distinction between rationality and ethics in these senses is that the former emphasises means, whilst the latter emphasises ends. Yet, in theory as in practice, means and ends are inextricably intertwined.

The role of rationality in the alternative, **deontological** ethics, is even more crucial. According to De George (1990, p66), the deontological tradition considers that "being moral is the **same** as being rational". Also, "by analysing reason ...we find the key to morality". In this context "reason" and "rationality" incorporate conscious reflection and analysis, leading us

to the categorical imperatives of the Kantian ethical tradition. (e.g. A moral agent should act according to universalizable principles.)

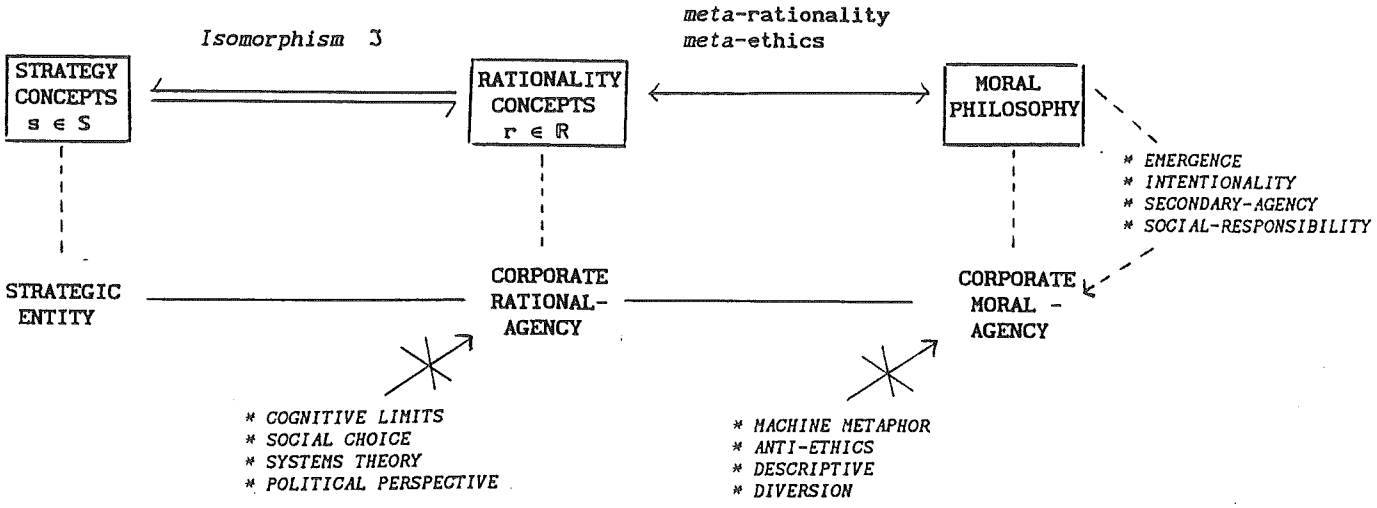
More recently, developments in Game Theory (Elster's "strategic rationality") have explained many aspects of moral behavior in terms of the special rationality. Mackie (1980) has shown how game theory explains many principles of everday morality, such as returning favours. In a similar spirit, Axelrod (1984) has used computers to explore the vast complexities of dynamic gaming, uncovering economically rational foundations for being "nice, forgiving, provocable and clear". In Axelrod's analysis the players are disembodied, yet once again they have been honoured elsewhere with a dual interpretion: as individuals (in Axelrod's own commentry) and as firms, in the strategy literature (e.g. Neilsen, 1989; Singer, 1988).

Psychological games forge yet another pathway between rationality and ethics. In these games, players' payoffs depend on the beliefs of the other players (as distinct from their strategy). This device opens the way for incorporating the effects of guilt and gratitude into the calculus of game-playing (e.g. Geanakoplos *et al*, 1989). In sum, as Williams (1985) has noted: "It might turn out (that) we are committed to an ethical life...because we are rational agents." As new theoretical developments steadily unfold (e.g. McLennan, 1990) this remark becomes ever more salient. Moreover, it quite plainly applies with equal force to the "ethical life" of the rational **corporation**. It is prompted, not by the definition of the agent, but by the many shared characteristics of rationality and morality.

The complete framework may now be set out (Figure 3). First, as outlined earlier, the structure set $\mathbb{S}$ of core Strategic Management concepts is demonstrably isomorphic to the structured set $\mathbb{R}$ of plural rationalities. The implied concetp of CRA may then be defended against the major *anti*-CRA arguments, by appealing to the broader concept of plural rationality. Second, as indicated above, the overall fabric of the plural rationalities is quite sufficient to wrap up much of ethical theory and practical morality, leading to a new viewpoint that sees "Strategy as Moral Philosophy", with the corporation now cast as a **moral** agent.

Like CRA in organization theory, CMA has also been repeatedly challenged in the Business Ethics literature. The tension between *pro* and *anti* **CMA** camps has at least equalled that between opposing camps on rational-agency, with the major *anti*-CMA arguments including: (i) the machine metaphor, (ii) the *anti*-ethics position, (iii) CMA as a diversion, and (iv) descriptive ethics. These independent challenges to CMA must also now be confronted.

FIGURE 3. A CONCEPTUAL FRAMEWORK LINKING STRATEGY WITH ETHICS



The various challenges to CMA are now all quite vulnerable to the arguments from rationality to ethics, as follows:

(i) *MACHINE METAPHOR:* The organization may be likened to a machine, controlled by **individuals** who must themselves accept moral responsibility (e.g., Danley, 1984).

This metaphor opposes CMA because it suggests that the individual managers are the only moral agents (drivers, not cars). However, the identification of organizations as plurally rational agents, more akin to living systems than machines (in the Danley sense), completely undermines the metaphor, because such "machines" are not rational agents.

(ii) *ANTI-ETHICS:* Knowledge is subordinated to power relationships, whilst ethics is seen as "an affliction of the weak" (Neitche, 1886). Put differently: "*Conscience* doth make cowards..." [*Hamlet*], or, "If we talk of *reason* let us shut our gates and sleep..." [*Troilus & Cressida*].

The explicit identification of rational-ethics with strategy now presents a major difficulty for this *anti*-CMA position, simply because rejecting all of ethics now also entails rejecting very large tracts of prescriptive management theory (e.g. Stakeholder management).

(iii) *DESCRIPTIVE ETHICS:* Empirical Social Psychology and descriptive ethics sees groups and organizations as belonging to a different moral category from **individuals**. Group moral judgements are in fact distorted relative to the individual's conscience (e.g., Janis & Mann, 1977).

This argues from "is to ought". Moreover, to the extent that group decisions empirically fail to match individual's ethical standards, the need for linking strategy to ethics, with an implied concept of **CMA**, becomes that much greater.

(iv) *CMA AS DIVERSION:* Arguments for CMA are harmful "diversions" from the "moral crusade" to the soul of individual managers (e.g., Rankin, 1987).

This *anti*-CMA argument does not make it clear *whose* attention is being diverted. In contrast "Strategy as Moral Philosophy" can now be operationalized as a technique for strategic analysis, that directs **managerial attention** to ethical concerns, alongside mainstream commercial issues (i.e. the *SCIO* technique, chapters 2, 4, 5) Finally, the case for CMA may be further reinforced by an appeal to other, independent, *pro*-CMA arguments in the Business Ethics literature, as follows:

(i) *EMERGENCE:* This sees corporate conscience as an emergent property of complex, evolving, cognitive systems (e.g., Singer, 1984). Arguably, modern **corporations** are now at the critical stage of evolution where their collective conscience is starting to emerge as a necessity of survival.

(ii) *INTENTIONALITY:* This analytic argument (French, 1984) sees the internal decision structure of the corporation as the key to a meaningful description of **corporate** acts as "intentional" and hence as carrying moral responsibility.

(iii) *SECONDARY AGENCY:* This argument (e.g., Werhane, 1983) equates the corporation to a "hired gun", with the **corporation** having the same moral standing as a person who actually pulls the trigger.

(iv) *SOCIAL RESPONSIBILITY:* This is a plea for moral responsibility by business leaders and **corporations** as a whole. It it is widely associated with the stakeholder approach in strategic management and a form of moral agency (e.g. Goodpaster *et al*, 1982).

In sum, denial of CMA has now become an extreme, barely tenable position. It could perhaps be sustained by insisting upon strictly *a*-rational foundations for ethics, like intuitionism or divine command theory. The only remaining tactic for denying CMA is radical indeed: a rejection of large tracts of prescriptive strategic management theory!

4. PRESCRIPTION IN STRATEGIC MANAGEMENT

"Strategy as Moral Philosophy" links the plural rationalities and ethics directly to **prescription** in Strategic Management. First, in this section of the paper, it is shown how strategy concepts and models may now be evaluated with reference to normatively appealng *meta*-rational and *meta*-ethical criteria, i.e. criteria for "choosing rationalities". Next, the framework is made operational as a decision aid that effectively integrates ethical with commercial considerations. Finally, it is suggested how Moral Philosophy could now offer new perspectives on such mysteries of strategy as timing, identity, and sunk costs.

(i) Choosing rationalities.

A focus on such strategy concepts as competitive analysis, stakeholders-as-constraints, etc., also corresponds, within the framework, to a choice of rationalities, in $\mathbb{R}$. This immediately invites the question:

"Which rationalities & ethics should be used to prescribe strategy?"

Moral Philosophy has identified several *meta*-rational and *meta*-ethical criteria, for classifying and evaluating the $r \in \mathbb{R}$ (hence $s \in \mathbb{S}$) as follows:

(a). *AGGREGATE vs AGENT ORIENTATION:* Some rationalities, e.g. *utility maximisation* (*RUM*), act as foundations of aggregate-level Economic theories, associated with **public-policy** prescriptions. These are the Economic rationalities, $r \in \mathbb{R}^{EC}$. Other $r \in \mathbb{R}^{EC} \subset \mathbb{R}$, e.g. *expressive, resolute, contextual,* are primarily oriented towards a localised decision-theory, more at the level of the individual (or corporate) agent. These forms emphasise some of the more subtle dimensions of rationality involving identity and co-ordination. These $r \in \mathbb{R}^{EC}$ are, *prima facie* at least as relevant as the mainstream Economic rationalities to prescribing strategy at the level of the firm.

(b). *RUM-CAPTURED vs. ELUSIVE:* Some $r \in \mathbb{R}^C \subset \mathbb{R}$ may be "captured" by formal *meta*-rational arguments, that identify then as special cases of *RUM*. For example, *bounded* is captured by *RUM* after allowing for the costs of information and computation. Other $r \in \mathbb{R}$ are more "elusive". For example, *commitments, expressive, contextual* forms all genuinely extend notions of rationality beyond the (traditional) Economic sense. Thus, a plurally-rational strategy should involve occasional corporate self-sacrifice; express fundamental corporate values; or work towards creating and maintaining traditions and institutions.

(c). *TEMPORAL-ORIENTATION: Foward-Looking vs. Backward-Looking:* Forward looking rationalities, $\mathbb{R}^{FOW} \subset \mathbb{R}$, are defined without reference to the past, whilst for $r \in \mathbb{R}^{BAK}$ there is at least some explicit historic reference. The set $\mathbb{R}^{BAK}$ includes: *posterior, adaptive, quasi, selected, resolute,* and *contextual* forms, amongst others. The partition of $\mathbb{R} = \mathbb{R}^{BAK} \cup \mathbb{R}^{FOW}$ now underpins the strategy prescription of adapting to the past whilst, at the same time integrating with possible futures (Mintzberg, 1990; Ansoff, 1991; Kervern, 1990).

(d) *META-ETHICAL SCOPE* Several other *meta* ethical criteria critically evaluate the scope of any given form of rationality, $r \in \mathbb{R}$, as follows:

Globally vs Locally Optimal (Mclennan, 1990). A globally-optimising $r \in \mathbb{R}$ maximises total lifetime utility for the agent, after taking into account the impact of current decisions on the agent's future preferences, learning or habit-formation, and co-ordination with others (*resolute* is "global", *RUM* is "local").

Universalizable vs Exclusive (Kant, 1956). A universalizable $r \in \mathbb{R}$ is one that the agent prefers other agents to adopt (*Kantian* is universalisable, by definition, *RUM* is not, in Prisoners' Dilemma Games.

Self-Supporting vs. Self-Defeating (Gautier, 1990). A self-supporting $r \in \mathbb{R}$ hypothetically chooses itself when used to select an $r \in \mathbb{R}$, as in Figure 4. Whilst *Kantian* and *commitment* are self-supporting, in this sense, *RUM* is self -defeating in Prisoner's Dilemmas.

Collectively, these and several other *meta*-criteria characterise a **prescriptive gap** that now seperates the assumptions of mainstream Economics from several other normative principles of rationality and ethics. Put differently, whilst the axioms of *RUM* models in Economics have a powerful

normative appeal, so do the various *meta*-criteria that *RUM* fails. Now, with "Strategy as Moral Philosophy" in place, these same *meta*-criteria could also be used to evaluate strategy concepts, $s \in \mathbb{S}$.

For example, under the mapping $\mathfrak{I}$, the concept of STAKEHOLDERS AS CONSTRAINTS, in $\mathbb{S}$, corresponds to *rational sympathy* in $\mathbb{R}$. As a form of rationality $r \in \mathbb{R}$ the latter is: *Agent*-oriented, *RUM-captured* (utility could be maximised after allowing for the impact on others), also *foward-looking*, *local*, *non-Universalisable*, and *self-defeating*. "STAKEHOLDERS AS CONSTRAINTS", in $\mathbb{S}$, is thus characterised as a component of a general prescriptive theory of strategy, in exactly the same way. Put differently, it makes sense to say that corporate strategy **should** be predicated on a view of stakeholders-as-constraints, but this sense of "should" is qualified by the *meta*-criteria.

A rather similar approach also applies to evaluating and choosing formal strategy **models** (Singer, 1991). The **decision-function-rationality**, $\mathfrak{D}$ (M) of a model $M \in \mathbb{M}$, the set of models, is a mapping that associates any given model, M with its underlying form(s) of rationality, $r_i^M \in \mathbb{R}$. Formally, for any given model, $M \in \mathbb{M}$, the model-set, we have :

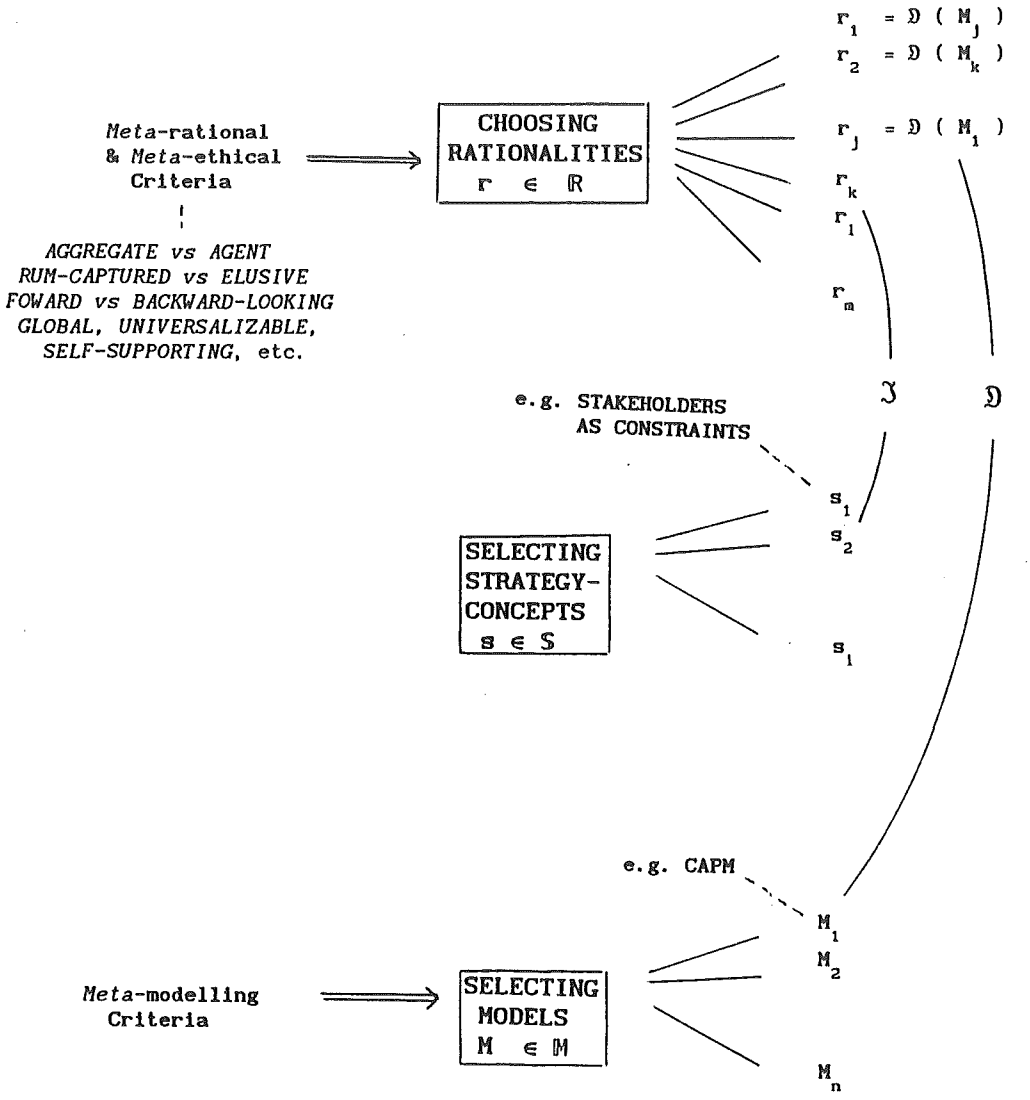
$$\mathfrak{D}(M) = \{ r_1^M, \quad r_2^M, \quad , r_k^M \} \subset \mathbb{R}$$

For strategy models such as the BCG growth-share-matrix (e.g. Day, 1986), the Capital Asset Pricing Model (e.g. Naylor, 1983), Social Cost-Benefit Analysis (e.g., Prest *et al* 1985), respectively:

$$\mathfrak{D}(\text{BCG}) = \{ \textit{strategic-beliefs, imperfect} \}$$
$$\mathfrak{D}(\text{CAPM}) = \{ \textit{RUM} \}$$
$$\mathfrak{D}(\text{CBA}) = \{ \textit{Act-utilitarianism} \} \quad \text{etc.}$$

The prescriptive status of the models is then equated with the status of their decision-function-rationalities, $r \in \mathbb{R}$, relative to the above *meta*-criteria (Figure 5). Thus, for example, CAPM identifies investments that should be made, but only within a sense of "should", qualified by the *meta*-criteria, applied to *RUM* $\in \mathbb{R}$. Some rather similar rationality-based approaches to model evaluation (*meta*-modelling) have been proposed before, by Morecroft (1983), Myers (1984), Eilon, (1985), Van Gigch (1990) and Singer (1991).

FIGURE 4. CHOOSING RATIONALITIES, STRATEGY CONCEPTS AND MODELS.



(ii) The SCIO technique

The entire set $\mathbb{R}$ can now also be used to underpin strategy formulation. The SCIO technique: "Specifying Canonical Issues and Options" (or "*I Know*", in Latin) views knowledge of the plural rationalities within an organizational economy-of-cognition (e.g. Bourgine, 1989). Thus, if managerial attention is a scarce resource, at least some attention should then be allocated to each $r \in \mathbb{R}$, when formulating or evaluating strategy. Thus, rationalities involving histories and traditions, co-ordination with others, identities, beliefs as well as ethical issues all have a place in strategy prescriptions, alongside conventional Economic considerations.

This philosphy simply represents a generalisation of the earlier trends, in the 1970s, away from "myopic" profit planning (*parametric rationality*) towards "competitive strategy" (*strategic rationality*). If according to that earlier doctrine, planners should "think strategically", then it may now be asked why they should not also think in terms of the entire set $\mathbb{R}$. Certainly, the *meta* rational and ethical criteria do not rule this out. Accordingly, a new strategic decision model, $\mathbb{M}_R$ is now needed, for which:

$$\mathfrak{D}\ (\mathbb{M}_R) \ = \ \mathbb{R}$$

Finding $\mathbb{M}_R$ is quite simple: it is nothing other than Tables 1-7 set out in chater 2. That table may itself be used to structure a plurally-rational, hence ethical decision process. It may be used in this way in a wide variety of strategy contexts, for example:

POLITICAL DIVESTMENTS: In politicized divestments by MNCs, the checklist directs attention to purely ethical issues as "clean hands" (the ethics of participation) and "relativism" (principles for different societies) that might otherwise be ignored. These may then be considered relative to conventional commercial considerations, possibly expressed in terms of their impact on key performance parameters, like the effect of political pressure groups in the MNC home country (Singer *et al* 1987).

ACQUISITIONS: In acquisitions contexts, other elements of $\mathbb{R}$, e.g., systemic, expressive, intensive forms, focus attention on such plurally-rational issues as traditions, identities, and formal-model-use within the target corporation, respectively.

COMPETITIVE ANALYSIS: SCIO may also be adapted for use in business competitor analysis (Singer 1992b). In this context, a view of other "competitor" organizations as plurally-rational-agents can enrich understanding of observed strategic behavior (see chapter 5).

In yet other contexts, analysis of the firm's strategic position and prospects involves consideration of the sense of corporate autonomy, learning from mistakes, symbolic acts, fairness issues, etc. In sum, the SCIO technique forges quite practical linkages between **Strategic** and **Ethical** analysis. In contrast, managers using conventional strategic and financial planning concepts are, at the same time, choosing their rationalities and their ethics, by selectively attending to a strict subset of $\mathbb{R}$.

(iii) Mysteries of Strategy

Further applications of "Strategy as Moral Philosphy" concern some of the more enduring mysteries, or paradoxes of strategy. These may be recast as general rational-moral dilemmas. Thus, Moral Philosophy potentially informs the theory of strategy in such areas as : timing, identity and sunk-costs, as follows:.

STRATEGIC TIMING : *Postponement* has recently been the focus of several strategy models, $M_i \in \mathbb{M}^{[P]} \subset \mathbb{M}$ (Pindyck, 1991). These are all Economic models with :

$$\mathfrak{D}\ (M_i) = RUM, \quad \text{for all } M_i \in \mathbb{M}^{[P]}$$

However, alternative rationality assumptions, particularly *precommitment* are also quite relevant to problems of corporate strategic timing. *Postponement* vs. *precommitment* is a paradox of rationality, as the former calls for delay, to obtain further information, but the latter prescribes immediate action before goals change. In short, a foundation of plural rationality could yield richer prescriptions for corporate strategic timing decisions.

STRATEGY WITH SUNK COSTS: Investment decisions with sunk costs has also been the focus of various strategy models, $\mathbb{M}^{[SK]} \subset \mathbb{M}$, e.g. Staw, (1980), Schwenk *et al*, (1989), to mention but a few. Further developments towards refining prescriptions could now be directly related to the entire set $\mathbb{R}^{BAK} \subset \mathbb{R}$, of *backward-looking* rationalities (e.g. McLennen, 1990). Specifically, there is a *non-empty* subset, $\mathbb{R}^{BAK^*} \subset \mathbb{R}$, defined as:

$$\mathbb{R}^{BAK^*} = \mathbb{R}^{BAK} - \bigcup_{M \in \mathbb{M}^{[SK]}} \{\ \mathfrak{D}\ (M)\ \}$$

The elements of $\mathbb{R}^{BAK^*}$ include: *contextual, resolute, selected* forms of rationality, each of which could now inform the prescriptive theory of strategy, in situations involving sunk costs (see chapter 4, following).

AUTONOMY & IDENTITY: *Expressive* rationality combines sociological with economic perspectives. It also now constitutes a distinctive theory of "expressive strategy", that prescribes (corporate) acts that are intentional expressions of (corporate) identity, or autonomous values. This particular $r \in \mathbb{R}$ is not *RUM-captured*, because it involves experimentation with preferences (Hargreaves-Heap, 1989).

In sum, the recent developments in the general theories of rationality and ethics are also, at the same time, potential developments in the prescriptive theory of strategic management. The present conceptual framework makes this linkage quite explicit. Conversely, empirical strategy research now becomes directly relevant to the general theories of rationality and ethics. Empirical programs focusing on such issues as strategic timing, identities, persistence, competitive and co-operative **corporate** strategies are all, at the same time, tackling some of the more enduring problems of Moral Philosophy (Singer 1992a).

5. CONCLUSION

The viewpoint that sees "Strategy as Moral Philosphy" with the corporation as a moral agent also reinterprets prescription in strategic management in terms of the plural rationalities and general principles of ethics. This, in turn, suggests a more **holistic**, mid-level approach to prescriptive strategic decision analysis, whilst it also points to a new theoretical approach to resolving some of the mysteries of strategy.

In addition, the present conceptual framework explains several earlier observations about CRA and CMA, such as the "striking" congruence between administrative and ethical problems (Goodpaster, 1988), the "uncanny" parallels between planning concepts and cognitive-psychology (Hogarth *et al,* 1981), and the rather mysterious "reverse logic" of Strategic Planning advocated by Hayes (1985). More generally, "Strategy as Moral Philosophy" could complement a variety of alternative paradigms in strategic-decision research, such as the empirical programs of Hitt *et al,* (1991), or P. Marsh *et al* (1988), the systems-theory programs of Zeleny (1980), or Van Gigch (1991), the philosphical approaches of Mason *et al* (1981), or Van Peursen (1989), and the Artificial Intelligence approach of Sutherland (1989).

Finally, it is observed that whilst the three *macro* trends of Strategy, Rationality and Ethics are converging, a fourth *macro*-trend has also made itself apparent...in the global business environment. There has been a quite widespread shift towards *laissez-faire* public policies, in many of the Worlds most developed nations. As a result, the power of **corporate** policies and strategies has correspondingly increased, suggesting that a new synthesis of Strategy with Ethics has now become rather more important, if not urgent. Such an integration of Strategy with Ethics is potentially *"Une therapeutique - la moins violente possible - des maladies de la societe"* (Kervern, 1990). Integration also complements the developing synthesis of Economics with Ethics, at the systemic level (Sen, 1977; Hamlin, 1986). In sum, a framework of Strategy as Moral Philosphy, with the corporation cast as a moral agent, is not only sustainable, it is also quite useful and timely.

CHAPTER FOUR

STRATEGY WITH SUNK COSTS

1. INTRODUCTION

There is compelling evidence that living systems (e.g. individuals, organizations, etc.) often act, or desire to act, in ways that depend upon their own **past** actions, intentions, plans or strategies. Striking examples of this dependence have been identified and analysed, across the entire spectrum of the managerial, biological, social and cognitive sciences (e.g. Staw, 1976; Dawkins, 1980; Kahneman & Tversky, 1981; Kavka, 1983; Thaler, 1985). One simple example can serve to capture the essence of the behavioural phenomenon at the level of the individual decision-maker:

> "You have tickets to a basketball game in a city 60 miles from your home. The day of the game there is a major snowstorm and the roads are very bad. Holding constant the value you place on going to the game, are you more likely to go to the game: (a) if you paid $20 each for the tickets, or (b) if you got the tickets for free?" (Thaler, 1985)

When asked to respond to this question, most people choose (a) and then "require a lengthy explanation" to convince them that, in a sense, theirs is not a rational position. Many insist, for example, that the $20 already spent should not be wasted.

There are many other examples of empirically observable choices that also appear to contravene the various principles of rational utility maximization (*RUM*), principles that, in turn, lie at the heart of much of mainstream Economic theory. These empirical findings have stimulated research in several inter-related disciplines, including Strategic Management. More specifically, psychological concepts such as cognitive-heuristics, systematic biases in judgement and framing effects in decision-making have all been used to probe mysteries of strategy, including those related to sunk costs (e.g. White, 1986; Bowen, 1987; Schwenk *et al* 1989; Bateman, 1989, to mention a few). The present paper investigates further, using the new conceptual framework of Strategy-as-*plural*-Rationality (Singer 1992a,b). This framework now permits a quite general formulation of the **sunk-cost problem** for any plurally-rational agent or strategic entity. It also yields a prescriptive technique for strategic re-considerations with sunk costs, a variant of the *SCIO* inquiry-procedure.

Two intertwined issues involving the meaning(s) and scope(s) of "rationality" have confronted or confounded applications of cognitive-psychological and social-psychological concepts to the general mysteries of strategic management. The first issue concerns the many distinctive and reasonable **forms** of rationality, i.e. the various sense(s) in

which the empirical choices of individuals (or groups or organizations) could possibly be considered as "rational". The second concerns the scope(s) of each of these distinctive forms. That is, given any particular form of rationality (*RUM, bounded, quasi, expressive, resolute*, etc.) what is and is not admissable as a rational-agent or entity, for that particular form?. For example, does the scope of *quasi* rationality, the form that describes *(inter alia)* the majority of responses in the basketball puzzle, extend beyond individuals to groups, organizations, firms, or other systems?

The generic sunk-cost problem

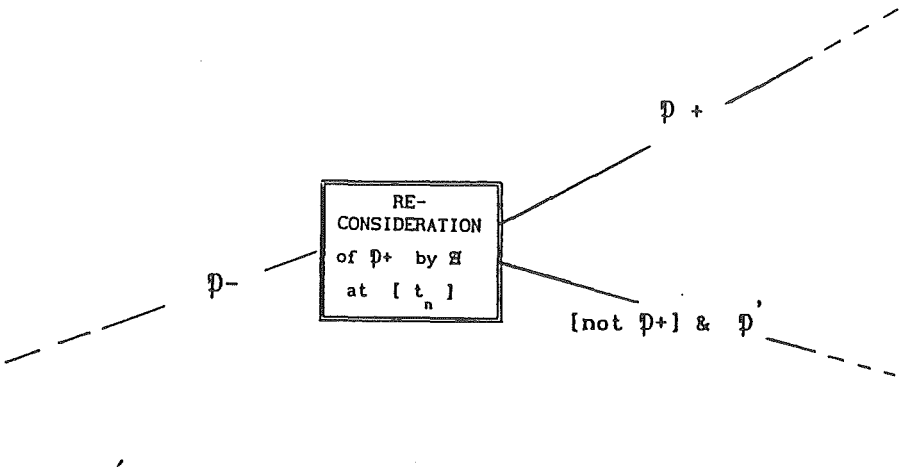
"Strategy-as-Rationality" (Singer, 1992a) provides researchers with a concetpual sword that can cut this Gordian Knot. It is a new framework (outlined in section 4 of the paper) that identifies the strategic-entity as a *plurally*-rational-agent, thereby underpinning prescriptive dimensions of strategic management theory. the new conceptual framework also enables a quite general (and rather useful) re-formulation of a generic sunk-cost problem. The generic sunk cost problem involves any plurally-rational agent, $\mathfrak{A}$, with a strategy or a plan, $\mathfrak{P}$, as follows:

(i) $\mathfrak{A}$ is a *plurally* rational agent. That is, the behaviour of $\mathfrak{A}$ conforms to **all** of the distinctive forms of rationality (over 38 in all) identified in the general theory. $\mathfrak{A}$'s rationality varies according to multiple contexts, i.e. its perceived "Multiverse" (Zeleny, 1992).

(ii) $\mathfrak{P}$ is a project, plan, program, or strategy that is being re-considered by $\mathfrak{A}$, at some time, t_n . Part of $\mathfrak{P}$ (i.e. $\mathfrak{P}$-) has already been implemented. Continuation with the next part of $\mathfrak{P}$ (i.e. $\mathfrak{P}$+) is re-considered. Thus, $\mathfrak{A}$ will either continue with $\mathfrak{P}$ (i.e . choose $\mathfrak{P}$+) or else abandon $\mathfrak{P}$ thereby choosing **[not $\mathfrak{P}$] with** $\mathfrak{P}^{ALT}$ (an alternative).

Thus, in the case of $\mathfrak{A}$ as a corporation, $\mathfrak{P}$ could be, for example, the construction of a large plant with specified technology. In the case of $\mathfrak{A}$ as an individual, $\mathfrak{P}$ could be a simple plan to go to a basketball match. In the case of $\mathfrak{A}$ as a *digger - wasp* (Dawkins, 1980) $\mathfrak{P}$ could be a strategy of fighting challengers in the population until they surrender, in order to acquire a well-provisioned nest. "Strategy as Rationality" sees these as *isomorphic* problems, having essentially the same characteristics.

FIGURE 1. THE GENERIC SUNK COST PROBLEM



Theory-types

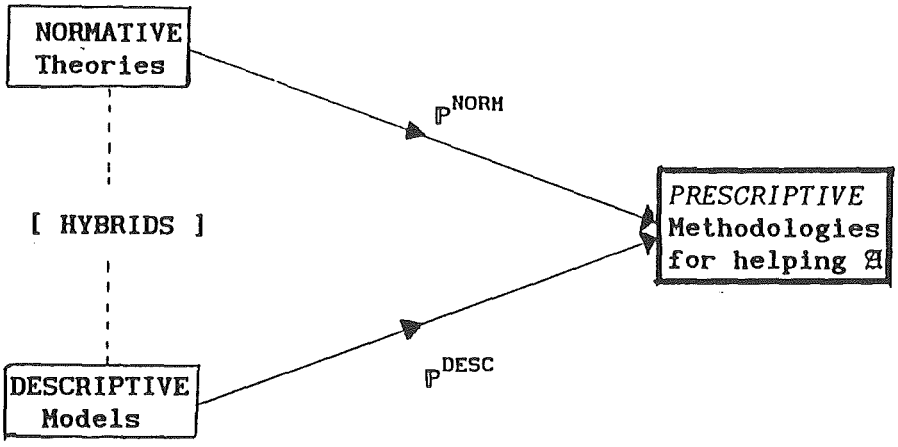
On the face of it there are already four broad classes of theory of decision-making that could be applied to the generic sunk cost problem. These four classes are normative, descriptive, hybrid and prescriptive, as follows:

Normative theory, a family of models $\mathbb{M}^{NORM}$ is derived mathematically from postulates of utility-maximising choice. Its focus is therefore on the logical consistency of choices and on well-defined preference structures (e.g. Bell *et al*, 1983). In this sense it provides a specification of what the agent $\mathfrak{A}$ *should* do. The models in this type of theory are mostly *content*-oriented, working through the "normative" implications of factors like reputation, competition, risk and reversibility, etc. Most Financial Economic models are in this class, along with several variants of the subjective-expected-utility (SEU) model in decision-theory.

Descriptive theory, another family of models $\mathbb{M}^{DESC}$ is derived from empirical data. In this case, the concern is with *what* $\mathfrak{A}$ decides and *how* it decides, e.g. what heuristics are used and what is attended to. It is therefore *process*-oriented. Social Psychological and Cognitive Psychological models are all in this class.

Hybrid theories combine elements of normative with descriptive theory. For example, empirical, data-driven variants of the SEU model, like Prospect Theory (Kahneman & Tverky, 1979) and Transaction Utility Theory (Thaler, 1985) are "hybrids", as are the modern theories of cognitive equilibrium in decision-making (Zeleny, 1989). The former have been used specifically as foundations for developing prescriptions at the aggregate economic or public-policy level (Russell *et al*, 1989; Frey *et al* 1990) and also, at the level of their local meta-theories, to develop some *meta-cognitive* prescriptions for the strategic behaviour of $\mathfrak{A}$ (section 3, below)

FIGURE 2. PRESCRIPTIONS FROM THEORY-TYPES



Prescriptive theory is not so much a "theory" as family of methodologies, techniques, tools or principles created fro the sole purpose of helping or informing $\mathfrak{A}$, as in OR-MS, Systems Analysis, Clinical and Ethical Consultancy etc. The particular "prescriptions" derived from normative theory together comprise a distinctive set, $\mathbb{P}^{NORM}$. For example, one prescription in $\mathbb{P}^{NORM}$ is: "Invest in all projects whose calculated IRR > R^{*} ", where the value of R^{*} is obtained from some model in $\mathbb{M}^{NORM}$. Alternatively (Figure 2.) other prescriptions could be associated with the descriptive models in $\mathbb{M}^{DESC}$. The latter precriptions, the family $\mathbb{P}^{DESC}$, are generally oriented towards decision-process improvements rather than substantive content. Yet other prescriptive methodologies have also evolved through consulting experiences, rather than as derivatives of established theories or disciplines (e.g. Rosenhead, 1989; Oral, 1987).

For strategic re-considerations in the sunk cost context, examples of each of these various types of prescription already exist. Taken together, however these currently present a somewhat confusing picture. Accordingly, in the following section of the article, prescriptions derived from normative theory are first critically reviewed and then re-structured around a concept of *sunk cost factors*. The latter represent the carryover effects or latencies inherent in an earlier strategy $\mathfrak{P}-$. Particular attention is then paid to the normative "Principle of Ignoring Sunk Costs" (*PISC*) with its several interpretations. For descriptive theory, $\mathbb{M}^{DESC}$, the associated family of prescriptions, $\mathbb{P}^{DESC}$, then becomes the subject of section 3 of the paper where they are compared and contrasted with the set $\mathbb{P}^{NORM}$. Against this background of state-of-the-art in prescribing strategy with sunk costs, the new conceptual framework of "Strategy as (*plural*) Rationality" is then proposed as a useful alternative paradigm. The new framework yields a quite general inquiry procedure for strategic re-considerations, SCIO-BAK, based upon the set $\mathbb{R}^{BAK}$ of the *backward-looking* rationalities. Finally, in section 5, various conflicts and confusions surrounding *PISC* are re-cast in terms of the several meta-rational arguments linking the set $\mathbb{R}^{BAK}$ with prospective or *foward-looking* forms, like *RUM*.

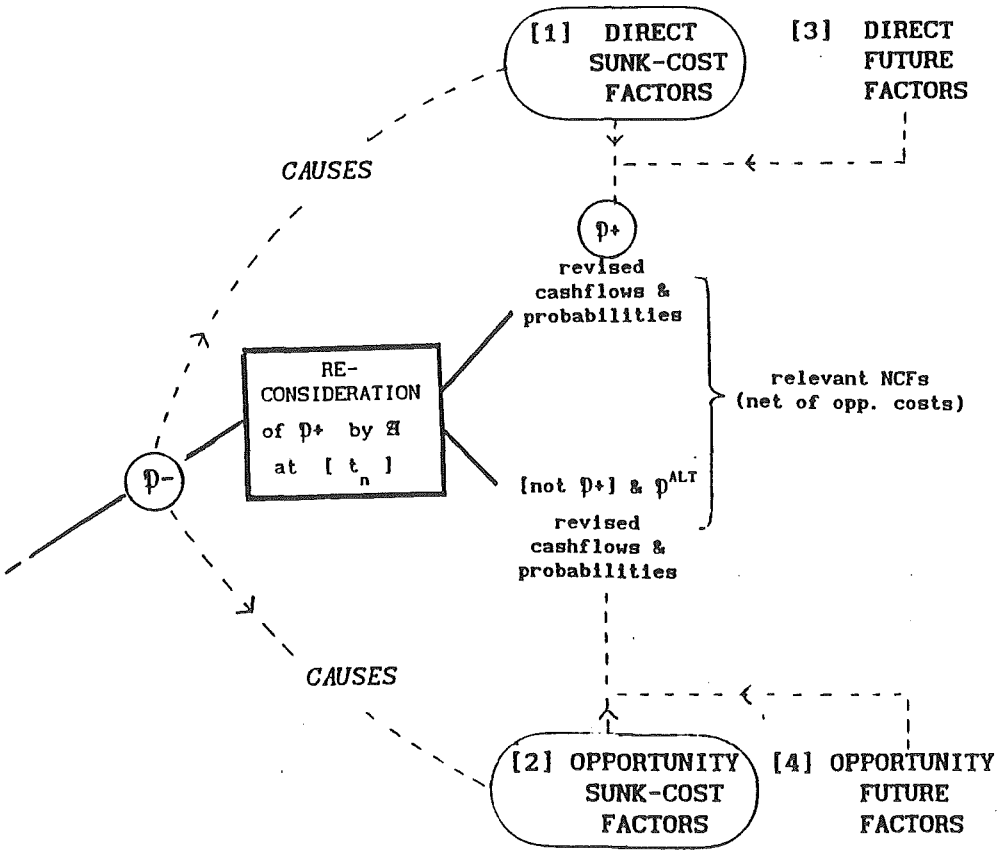
2. NORMATIVE THEORY

The normative theory of strategic decisions, the family $\mathbb{M}^{NORM}$, consists of formal mathematical models that are rigorous, precise, elegant and complex, but, in their local *meta*-theory, quite modest in any claims to immediate usefulness. In short, normative theory has some almost spiritual qualities. In addition, the normative approach has also yielded some testable predictions (including some involving sunk-costs) at the aggregate level of economic activity (e.g. Dixit, 1989). However, its usefulness for prescribing strategy for a strategic entity, $\mathfrak{A}$, has been seriously and quite widely questioned, especially by some prominent exponents of the normative theory (e.g. Grubel, *et al,* 1986; Kay, 1991; Pindyck, 1991).

The treatment of **sunk costs** in normative theory has inherited all of these characteristics. The normative **Principle of Ignoring Sunk Costs** (*PISC*) states that past expenditures by $\mathfrak{A}$, at a time t_1 are "not relevant" to investment decisions by $\mathfrak{A}$ at a later time t_n where $n > 1$. This is **not** to say that the past *per se* is irrelevant to prescriptive applications of $\mathbb{M}^{NORM}$. Far from it. The normative theory clearly recognises that past events and actions of $\mathfrak{A}$ in earlier periods t_j , with $j < n$, are all quite relevant and important when specifying the parameters for any

of the the models in $\mathbb{M}^{NORM}$ and hence for the model-based prescriptions for $\mathfrak{p}+$. Specifically, past outlays by $\mathfrak{A}$ on $\mathfrak{p}-$ are explicitly recognised within the normative theory (or its local meta theory) as **partial causes** of later events and conditions (e.g. reputation, motivation) in periods t_k with $k > n$ (Figure 3). These events and conditions, in turn, are then considered within the theory to impact upon the updated forecasts, revised probabilities and reset hurdle-rates or whatever that characterise $\mathfrak{p}+$ and the alternative, **[not $\mathfrak{p}+$] with $\mathfrak{p}^{ALT}$**.

FIGURE 3. SUNK-COST-FACTORS IN THE NORMATIVE THEORY



There are several specific factors recognised in $\mathbb{M}^{NORM}$ as comprising causal-linkages between $\mathfrak{A}$'s early strategic behaviour, during $\mathfrak{p}-$, and the subsequent evaluation at t_n of $\mathfrak{p}+$. For clarity, these *sunk-cost-factors* may be seperated out into direct and opportunity sunk-cost-factors. The former, class [1] below, are those seen in the normative theory, or its local meta-theory, as impacting upon $\mathfrak{p}+$ directly. The latter, class [2], impact upon the evaluation of $\mathfrak{p}+$ indirectly, *via* its associated opportunity losses and gains, as follows:

[1] DIRECT SUNK-COST FACTORS *i.e. events or conditions recognised as having been* **caused** *by* $\mathfrak{A}$*'s behaviour in* $\mathfrak{P}-$ *and then affecting the evaluation of* $\mathfrak{P}+$ *directly.*

These factors include $\mathfrak{A}$'s **reputation** (Weigelt *et al*, 1988), **learning** (Tang, 1988), **information acquired** (Majd *et al*, 1987), **motivation** (Leibenstein, 1976), and **attained competitive position** (Talmor, 1992).

[2] OPPORTUNITY SUNK-COST FACTORS *i.e. recognised as having been caused by* $\mathfrak{A}$*'s behaviour in* $\mathfrak{P}-$ *and then affecting the direct evaluation of* **[not** $\mathfrak{P}+$**]** & $\mathfrak{P}^{ALT}$ *the next best alternative to* $\mathfrak{P}+$*. (i.e. affecting the opportunity costs and benefits of* $\mathfrak{P}+$*.)*

These include **contractual obligations** (Singer *et al,* 1987) and **attained asset position** (Pappas, 1976) which includes liquidity (in the case of $\mathfrak{A}$ as a firm) and the **myopic N.R.V.,** which is either the estimated direct disposal value to $\mathfrak{A}$ of the assets from $\mathfrak{P}-$ or else the estimated net costs to $\mathfrak{A}$ of a full clean-up of $\mathfrak{P}-$ (see **[4]** below). Ironically, many of these "*sunk cost factors*" in classes **[1]** & **[2]** are often ignored in prescriptive strategic analysis based upon the normative theory, when they should **not** be! In addition to these two classes of "sunk cost factors" other **future** events and phenomena, not necessarily seen as causally linked to $\mathfrak{P}-$ are also recognised within $\mathbb{M}^{NORM}$ (and the local meta-theory) as affecting the forecasts, probabilities or hurdle rates associated with $\mathfrak{P}+$. These factors may also be seperated out into direct or opportunity subsets, as follows:

[3] DIRECT FUTURE FACTORS *i.e. arising in the future, without any recognised causal link to* $\mathfrak{A}$*'s* **past** *behaviour, but impacting upon the direct evaluation of* $\mathfrak{P}+$

This class of factors delineates the scope and main focus of most strategic analysis in practice (e.g. Andrews, 1980). It includes such factors as **forecast competitor and stakeholder actions** (Singer *et al,* 1990), **political or legislative** factors (Porter, 1980), **macroeconomic parameters** (Haley *et al,* 1979), **technological developments** (Porter, 1980; Schwenk *et al,* 1991; Talmor *et al*, 1992), **capital structure & systematic risk** (e.g. Naylor *et al*, 1983), **reversibility and future options** associated with $\mathfrak{P}+$ (Gupta & Rosenhead, 1968; Singer, 1987; Pindyck, 1991) and **portfolio synergies** (Karnani *et al*, 1985).

[4] **OPPORTUNITY FUTURE FACTORS** *i.e. factors arising in the future, without any recognised causal link to* $\mathfrak{A}$*'s past behaviour, but recognised as affecting the direct evaluation of the alternative,* [not $\mathfrak{p}$+] & $\mathfrak{p}^{ALT}$.

Class [4] includes the **defensive NRV** of the assets from $\mathfrak{p}$- i.e. after including such considerations as the potential impact on $\mathfrak{A}$ of the buyer's future use of these assets (Schwenk *et al,* 1989). It also includes the **Value of waiting,** i.e. the special case where $\mathfrak{p}^{ALT}$ = $\mathfrak{p}$+ **delayed** (McDonald *et al,* 1986)

In addition, normative theory has also offered alternatve interpretations for a fifth distinctive class [5] of factors, which is actually a strict subset of classes [1] - [4]. Factors in class [5] have each been explicitly recognised within some $M \in \mathbb{M}^{NORM}$ as affecting the **hurdle rates** for $\mathfrak{p}$+ . Examples of factors in this class are **systematic risk, reversibility & future options, technological change** and **value of waiting.** It now seems quite fair to say that there is some implicit double-counting going on within the extended normative theories. For example, factors like "rate of technological change" have been explictly linked to higher hurdle rates (Talmor *et al,* 1992) whilst they are also implicitly linked to future scenarios with their associated (lower) cashflow forecasts and probabilities (Schwenk *et al,* 1989). It is not too hard to find similar examples where a content-factor impacts explicitly upon hurdle rates, within a framework of marginal analysis, but also implicitly impacts upon the conditonal forecasts associated with a considered strategy.

2.1 Prescriptions from normative theory: the meta-theories.

The prospects for extracting prescriptive methodologies $\mathbb{P}^{NORM}$, from the normative economic theories, $\mathbb{M}^{NORM}$ have been quite thoroughly explored within the various local and global meta-theories. "Local meta-theory" is the sum total of what creators of the models in $\mathbb{M}^{NORM}$ themselves have had to say about applying these models to help $\mathfrak{A}$ in the sunk-cost context. They are not optimistic. For example, the local meta-theory states that:

> "...our optimal investment rule critically depends on (various parameters)...but in fact it may be difficult or impossible to estimate them..." (Majd *et al,* 1987)
>
> "... parameters...may not be easy to measure." "..measuring these opportunity costs can be difficult" (Pindyck, 1991).
>
> "...one gets an apprehensive feeling about prescribing (rules for setting hurdle rates)." (Talmor *et al,* 1992)
>
> "I hope the theoretical treatment deepens economists understanding of the issue.." (Dixit, 1989)

Various global meta-theories thoroughly endorse these local *caveats*. The "global meta-theories" of $\mathbb{M}^{NORM}$ are found in the general literatures of OR-MS, Systems, Forecasting and Accountancy. They include: *meta*-**modelling** (Ravetz, 1971; Ackoff, 1981; Mehrez, 1989) *meta*-**systems** (Van Gigch, 1991; Keys, 1988; Jackson, 1990) *meta*-**forecasting** (Makridakis, 1988; MacIntyre, 1984) and *meta*-**DCF** (P.Marsh *et al*, 1988; Pike, 1991).

These meta-theories are strikingly convergent. They all distinguish problem-types and appropriate problem-solving methodologies. They all distinguish "strategic" problems involving complex and chaotic cognitive-social-economic processes from other types of "tactical" problem, involving known or well-defined objects of choice (Table 1).

TABLE 1. STRATEGIC & OTHER PROBLEM-TYPES

Problem-Types		*Meta*-Theory
STRATEGIC	**OTHERS**	
practical	*technical*	Ravitz, (1971)
wicked	*tame*	Rittel & Webber, (1973)
ambiguous	*unambiguous*	Marsh, (1978)
problem	*mess*	Ackoff, (1979)
systemic	*mechanical*	Ackoff, (1981)
unclear	*clear*	Eilon, (1985)
unprogrammed	*programmed*	Simon, (1987)
conundrum	*puzzle*	Hollis (1987)
human	*[mechanistic]*	Wagner (1990)
primary	*secondary*	Langley (1991)
etc.		

In addition to all of this, *meta*-forecasting research (Makrdakis, 1989; MacIntyre, 1984) has demonstrated that the available methodologies for forecasting key-performance-parameters (costs, benefits, sales, etc.) for the strategic entity $\mathfrak{A}$ are quite unreliable. Forecasts at the level of the strategic entity are distinguished in the meta-theory of forecasting from aggregate or systemic-level forecasts such as actuarial or demographic projections, as the latter may sometimes be based upon quite deeply understood statistical processes.

Research into the actual use and effectiveness of forecast-based capital budgeting techniques, meta-DCF , is fully in agreement with *meta*-forecasting research. Meta-DCF simply confirms that forecasts of cashflows constitute a "barrier" to effective prescriptive application of theDCF models in $\mathbb{M}^{NORM}$. Such forecasts are, to quote from the global meta-theory: "extremely difficult" (Marsh *et al*, 1988), "impossible" (Crum *et al*, 1986), "inadequate" (Pruitt *et al*, 1987) and "unreliable" when produced in a controlled experient (Ang *et al*, 1979). Despite the widespread reported use of DCF (e.g. Pike, 1991) no one has ever felt able to publish even one real-life DCF analysis for a strategic corporate investment which has subequently turned out, *ex post*, to be correct (i.e. where the forecasts associated with $\mathfrak{P}$ or $\mathfrak{P}+$ were accurate, or where, on publicising the plan, the equity value of the firm actually increased by the *ex ante* calculated NPV of $\mathfrak{P}$.)

In sum, the convergent meta theories are now telling us that attempts to prescribe strategy for $\mathfrak{A}$, using the techniques derived from normative models, have not been particularly successful. Where strategic analysis makes use of normative theory in practice, the prescriptive models and techniques in $\mathbb{P}^{NORM}$ evidently perform quite a variety of unorthodox observed roles, as summarised in Table 2.

TABLE 2. UNORTHODOX ROLES OF $\mathbb{P}^{NORM}$ IN THE STRATEGY PROCESS

Techniques derived from normative theory act as...	
A RITUAL	...reinforcing a culture of (strong instrumental) rationality, or sustaining and orientation towards a goal of value creation (Gimpl & Dakin, 1984).
GLUE:	...binding or uniting managers behind a common set of concepts, practices, goals or strategies (Langley, 1991).
BATTERIES	...a source of motivation. Analysis *per se* acts psychologically to increase involvement and commitment and to reduce perceived risk (Langer, 1975).
STATUS-SYMBOL:	Access to the calculations displays status in the organization. This has also been observed with economic forecasts "used" in strategic analysis (Eerola, 1989).
PLIERS:	They are used to extract confessions from subordinates concerning their assumptions about strategy, or to squeeze subordinates into line when they oppose the strategy of the dominant coalition (Marsh *et al*, 1988).
A ROUND-TABLE	They simply provide a useful forum for discussion of strategic issues (Bennett *et al*, 1985).

This last role of "round table" (Table 2 above) is particularly significant. Evidence suggests that techniques in $\mathbb{P}^{NORM}$ like DCF-NPV are often used in practice simply to *activate the content* of a strategic decision. Put differently, they help $\mathfrak{A}$ to identify decision content by *inviting* (not directing) *attention* within $\mathfrak{A}$ to the substantive decison factors like those in classes [1] - [4]. It follows that any number of alternative methodologies (either associated with $\mathbb{M}^{DESC}$ or else *ad hoc*) could potentially do a rather better job of content-activation *via* the regulation or direction of attentional processes within $\mathfrak{A}$. The models in $\mathbb{M}^{NORM}$, whilst used for this purpose, were never intended or designed for it. Thus even Figure 3 (above) together with the specified factors in classes [1] to [4], could itself help $\mathfrak{A}$ to cognitively structure its strategic re-considerations, or help $\mathfrak{A}$ to better formulate strategy with sunk-costs. Figure 3, with its detailed description, is simply a non-mathematical summary of the rather dysfunctional family $\mathbb{P}^{NORM}$.

3. DESCRIPTIVE MODELS

Several other models of strategy with sunk cost, $\mathbb{M}^{DESC}$, are all descriptive rather than normative. That is, they are shaped around empirical evidence, including evidence of the behavioural violations of *PISC*. Descriptive models $M \in \mathbb{M}^{DESC}$ therefore characterise strategic choices by $\mathfrak{A}$ with at least some references to $\mathfrak{A}$'s **past** strategic behaviour. The various processes and prescriptions associated with the models $M \in \mathbb{M}^{DESC}$ are set out in Table 3, below.

TABLE 3. DESCRIPTIVE MODELS OF STRATEGY WITH SUNK COSTS.

Model $M_i \in \mathbb{M}^{DESC}$	Major Theme in M_i	Associated prescription for $\mathfrak{A}$
M_1 Staw (1980)	*Cognitive, Social:* Justification, norms of consistency, cognitive biases in judgemental forecasts.	-- set prior limits on outlays etc, -- use different decision making subsystems, or tacit approval only. -- consciously compensate for systematic biases.
M_2 White (1986)	*Cognitive:* Below-expectation performance in $\mathfrak{P}$- triggers *framing* in the domain of losses for decisions by $\mathfrak{A}$ at t_n. This causes risk-seeking behaviour, with a preference for options that make possible a return to the *status quo ante*.	-- be aware of this effect of framing, in order to avoid exposure to the downside of "risk-seeking". -- predict or expect risk-seeking behaviour by others, following their below - expectation performance.

cont...

TABLE 3. cont.

M_3 Bowen (1987)	*General:* Information about $\mathfrak{P}$- is often unreliable, ambiguous, equivocal;	-- be aware of that some situations lack hard decision criteria. -- be cautious about labelling decisions as "errors" *ex post* because "objective" assessment impossible *ex ante.*
M_4 Wernefelt & Karnani (1987)	*General:* qualitative, content-oriented	-- be aware that past investments influence optimal strategic timing (i.e delaying $\mathfrak{P}$+). -- be aware that past investments are footholds (i.e. attained market power) or windows (i.e sources of information)
M_5 Schwenk & Tang (1989)	*Cognitive, Social & content:* Interpretation of Economic factors mediated by $\mathfrak{A}$'s cognitive processes.	-- comply with M_1 (Staw, 1980) prescriptions. -- be aware of factors in class [1] & [2], specifically (a) learning curve cost reductions (b) forthcoming new technologies (c) non-myopic NRVs, in [not $\mathfrak{P}$+] i.e. defensive strategy.
M_6 Bateman (1989)	*Cognitive & General* : Failure feedback triggers a frame for re-considerations. "Slack" prevents $\mathfrak{A}$ from following $\mathfrak{P}^{NORM}$.	-- compensate for framing effects. -- consider influencing others by inducing frames. -- conceptualize "time as a stream" in strategic decisions & re-considerations.

Prescriptions from "descriptive" models

The various models in Table 2. above each combine elements of economic decision *content* (like forecasts) with specified cognitive &-or organizational *processes*, within $\mathfrak{A}$. On the face of it, prescriptive interpretions of $\mathbb{M}^{DESC}$, for helping $\mathfrak{A}$, risk confusing *is* with *ought*. However, the set $\mathbb{P}^{DESC}$ of prescriptions simply flows from several assumptions, embedded in the meta-theory of $\mathbb{M}^{DESC}$, about what could be process - improvements for strategic re-considerations. For example, if empirical evidence indicates systematic (optimistic) biases in forecasts, or specific framing-effects in decision-making (e.g. M_1, M_6) then it is argued in the local meta-theory that $\mathfrak{A}$ *should* consciously attempt to counter such "bias" and "effects". Put differently the prescriptions from $\mathbb{M}^{DESC}$ mostly involve *meta-cognitive activity* within $\mathfrak{A}$. Various existing prescriptions of this type are set out above in Table 3 (column 2). These may be further summarised, as follows:

1. $\mathfrak{A}$ *should...*

(i) Take into account various specified *content* factors in strategic re-considerations, particularly those *sunk cost factors* in class [1] (section 2 above).

(ii) Educate and train (subsystems) to counter the effect of cognitve bias, frames and mis-applied cognitive heuristics.

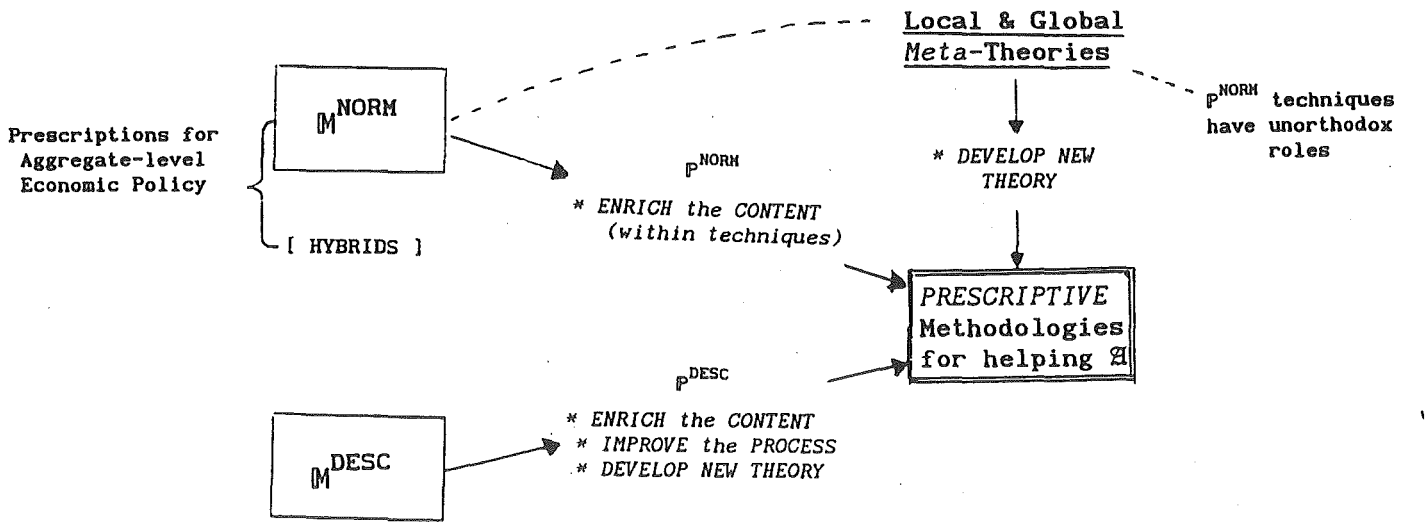
(iii) Employ internal control tactics, including: setting prior limits (at t_0) on various measures associated with $\mathfrak{P}$; Different decision-makers (for $\mathfrak{P}-$ and $\mathfrak{P}+$); Tacit approval only (of $\mathfrak{P}-$); improved reporting procedures.

2. *Researchers and-or* $\mathfrak{A}$ *should...*

(i) Re-think the traditional future-oriented planning framework.

(ii) View strategic decisions within a "time stream" as distinct from a future-orientation.

FIGURE 4. GENERIC PRESCRIPTIONS FOR STRATEGIC CONSIDERATIONS



Combining $\mathbb{P}^{NORM}$ (section 2) with $\mathbb{P}^{DESC}$ (section 3) now leaves $\mathfrak{A}$ with the following three broad categories (Figure 4) of model-based prescriptions for guiding strategic re-considerations:

Category 1. *ENRICH the CONTENT:* Richly define the strategic alternatives (the formal objects-of-choice). Include consideration and analysis of the various content-factors in classes [1] - [4]. The factors in [1], moreover, can only be characterised with some reference to $\mathfrak{P}$-.

Category 2. *IMPROVE the PROCESS:* Implement the *meta* -cognitive, training & control processes, from $\mathbb{P}^{DESC}$, and....

Category 3. *DEVELOP NEW THEORY:* Search for alternative or complementary **frameworks and paradigms** from which to derive prescriptions for strategic re-considerations by $\mathfrak{A}$.

One development within the latter category, i.e. new or complementary theories and frameworks, is now outlined in the next section of the paper.

4. COMPLEMENTARY FRAMEWORKS

Alternative prescriptive methodologies for strategic decisions in general are not at all hard to find (Rosenhead, 1989; Oral, 1987). Like $\mathbb{P}^{DESC}$, many such methodologies (e.g. *COPE, SODA, DA-DI, Strategic Choice* etc.) are process-oriented, targeting organizational and cognitive processes rather than any particular set of content-factors. They do not specifiy decision content *a priori*, rather they are oriented towards an integration or synthesis of strategy content with strategy process (Rosenhead, 1989; Pennings, 1985). Put differently, *holistic* methodologies are now needed that treat the strategic entity $\mathfrak{A}$ as an economic actor and at the same time a cognitive system, so that prescriptive techniques should somehow link the *cognition-of-economics* to an *economy-of-cognition*, in $\mathfrak{A}$ (Bourgine, 1989; Fishburn, 1991).

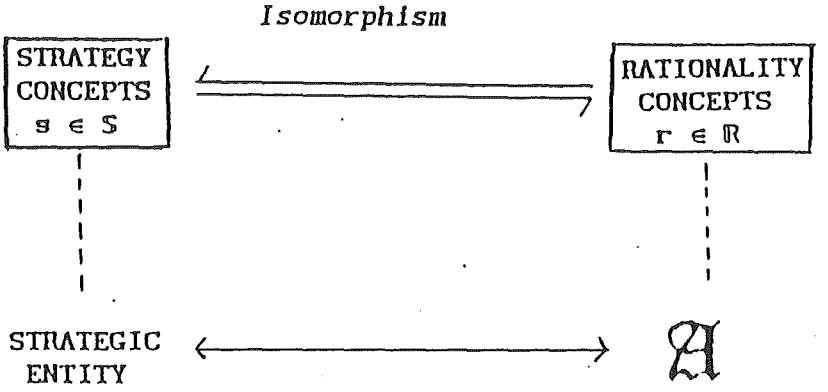
The new conceptual framework of "Strategy as Rationality" represents but one small step in this general direction. Its associated SCIO inquiry technique (Singer, 1992a,b) may now also be applied to strategic re-considerations in the sunk cost context, simply by focussing more closely on the *backward-looking* subset of the *plural* rationalities $\mathbb{R}^{BAK} \subset \mathbb{R}$.

Strategy-With-Sunk-Costs as *Backward-Looking*-Rationality

In the new conceptual framework, The rationality of the strategic entity $\mathfrak{A}$ is no longer conceived of as any particular well-defined preference structure. Instead, $\mathfrak{A}$ (whether a firm, coalition, individual, planner, or whatever) is seen to be not only a *RUM* agent, not only a *bounded, expressive* or *contextually* rational agent, but as *plurally*-rational,

according to the various problem contexts in its perceived "Multiverse" (Zeleny, 1992). Specifically, a strategy-set $\mathbb{S}$ is placed in one-to-one *isomorphic* correspondence with a rationality-set $\mathbb{R}$ whose elements are the many distinctive forms of rationality $r \in \mathbb{R}$. The strategic entity is then conceptualized as a *plurally* rational agent (Figure 5).

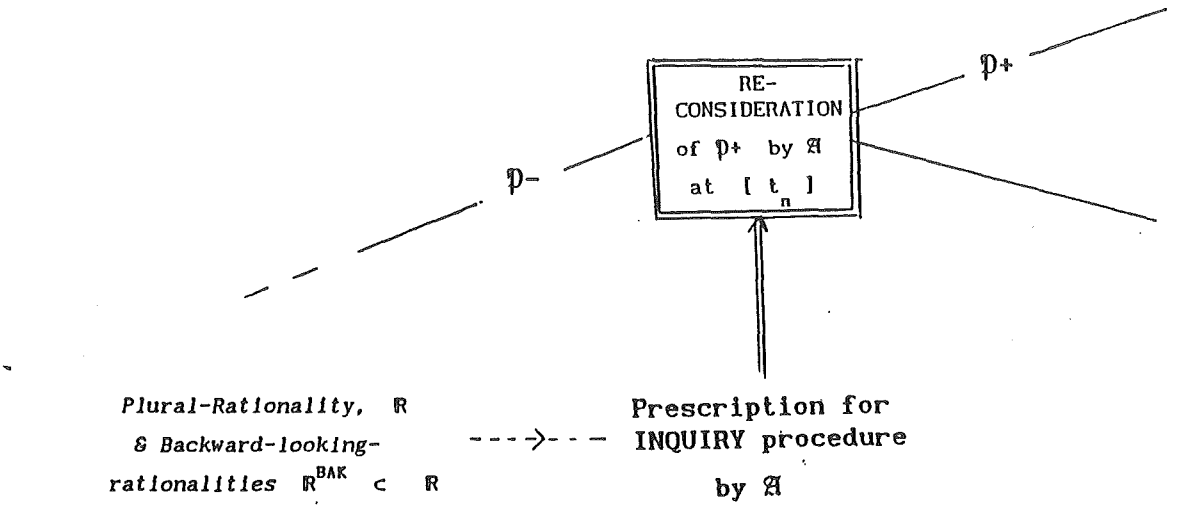
FIGURE 5. STRATEGY AS RATIONALITY: AN ISOMORPHISM



With this framework in place, the transition from general problems and mysteries of strategy (e.g. handling sunk costs in strategic re-considerations), to general problems of rationality (e.g. a human or even a *wasp* abandoning a "personal" plan) and *vice versa* (from rationality to strategy) then becomes completely straightfoward, uninhibited and rather productive. Advances in one field (i.e. in the general theory of rationality or of strategy) then directly informs and potentially enriches the other.

"Strategy as Rationality" yields a simple inquiry procedure, a set of questions flowing naturally and directly from the various distinctive $r \in \mathbb{R}$ that are intended to direct a comprehensive *meta-cognitive* re-structuring of $\mathfrak{A}$'s decision processes. Put simply, rather than have $\mathfrak{A}$ ask: "How can $\mathfrak{A}$ maximise utility", or "How can $\mathfrak{A}$ overcome problems of slack, bias or mis-applied heuristic rules", the SCIO inquiry procedure now asks questions corresponding to all of the $r \in \mathbb{R}$. In the sunk cost context of strategic re-considerations, this means that the SCIO approach can then enrich strategic inquiry with reference to the subset $\mathbb{R}^{BAK} \subset \mathbb{R}$ of the *backward-looking* rationalities (Figure 7).

FIGURE 6. META-COGNITIVE INQUIRY FROM BACKWARD-LOOKING RATIONALITY



The set $\mathbb{R}^{BAK} \subset \mathbb{R}$

The set $\mathbb{R}^{BAK}$ contains all those forms of rationality $r \in \mathbb{R}$ that are **defined** with some direct reference to the past; the history of the agent $\mathfrak{A}$, or others.

$\mathbb{R}^{BAK}$ = { *posterior, deliberative, selected, adaptive, open, quasi, ratchet, retrospective, constrained, resolute, contextual,* etc. }

These forms share the common property that decisions and actions are characterised as "rational" only with some explicit reference to past history. Each $r \in \mathbb{R}^{BAK}$ is described below with an associated (meta-cognitive) inquiry for $\mathfrak{A}$. Thus the rationalities themselves, (not models) can, in this way, directly yield a prescriptive tool or technique. The full set of rationality-based questions then comprises a (non-optimising) inquiry system for strategic re-considerations.

The *SCIO-BAK* inquiry

First, consider those particular *backward-looking* forms that are themselves foundations of specific theories in the socio-economic sciences. These include: *ratchet, adaptive, posterior, selected, quasi, retrospective* forms. Each of these forms yields a simple inquiry that is, inevitably, rather similar to the prescriptions (in $\mathbb{P}^{NORM}$ or $\mathbb{P}^{DESC}$) that have also been read into the corresponding aggregate-level theories. For example, in the case of Leibenstein's (1976) aggregate level theory of X-efficiency, the associated prescriptions *at the level of* $\mathfrak{A}$, discussed by Leibenstein, could also be read into the underlying rationality postulates (*selected, ratchet)* that were set out as the theory's foundation. Each of the above-mentioned rationalities $r \in \mathbb{R}^{BAK}$ with its corresponding meta-cognitive inquiry for $\mathfrak{A}$, is set out below:

RATCHET: $\mathfrak{A}$ experiences inertia, takes into account cognitive costs of reconsideration and the benefits to $\mathfrak{A}$ of co-ordication with others. etc. (Leibenstein, 1976).

Inquiry: *(i) What is the optimal timing and frequency of re-considerations? (ii) Does a choice of* [**not** $\mathfrak{p}$+] & $\mathfrak{p}^{ALT}$ *imply damage to* $\mathfrak{A}$*'s reputation, violation of trust in* $\mathfrak{A}$*, or loss of* $\mathfrak{A}$*'s co-ordination with others?.*

ADAPTIVE: $\mathfrak{A}$ incrementally updates past rules (March, 1978; Ansoff, 1991).

Inquiry: *Does the experience with* $\mathfrak{p}$- *justify adjustments to* $\mathfrak{A}$*'s policy guidelines, or other decision criteria.*

POSTERIOR: $\mathfrak{A}$'s goals are emergent, or interpretations of past actions by $\mathfrak{A}$. (Marsh, 1978)

Inquiry: *What are* $\mathfrak{A}$*'s goals now? Reformulate strategic goals in the light of* $\mathfrak{p}$-.

SELECTED: $\mathfrak{A}$ adopts rules because of their survival value in the past. The past competitive environment is the source of behavioural rules for $\mathfrak{A}$ (Marsh 1978; Hannan & Freeman 1977).

Inquiry: *(i) Will a habit and reputation of persistence (in similar situatons) make* $\mathfrak{A}$ *vulnerable to competitors with different strategies? (ii) Is there a risk to* $\mathfrak{A}$ *of a war of attrition (in the market for* $\mathfrak{p}$+ *outputs)?*

QUASI: $\mathfrak{A}$ makes choices in accordance with Prospect Theory &-or Transaction -Utility-Theory. In either case, choices depend on the past behavior of majority of (or typical) subjects (Kahneman *et al* , 1979; Thaler, 1985).

Inquiry: *What would the majority of $\mathfrak{A}$'s decide if they were in this situation?*

RETROSPECTIVE: $\mathfrak{A}$ assesses cost of violating the social norm of consistency, the benefit of being able to justify past decisions and actions of $\mathfrak{A}$ (Staw, 1980).

Inquiry: *(i) If $\mathfrak{p}+$ is changed, abandoned, will $\mathfrak{A}$ be perceived (by $\mathfrak{A}$ or others) as inconsistent? (ii) Can a justification of $\mathfrak{p}+$ be communicated. (iii) Have psychological biases (in forecasts for $\mathfrak{p}+$) been allowed for?*

A further subset of the backward looking rationalities $\mathbb{R}^{BAK*} \subset \mathbb{R}^{BAK}$ may now also be identified. The various rationalities $r \in \mathbb{R}^{BAK*}$ are **not** directly associated with any extant models in $\mathbb{M}^{DESC}$. Put differently, if $\mathfrak{D}(\mathbf{M})$ is the **decision function rationality** of a model, $\mathbf{M}$ (Morecroft, 1983; Singer 1991) then the subset $\mathbb{R}^{BAK*} \subset \mathbb{R}^{BAK}$ defined as :

$$\mathbb{R}^{BAK*} = \mathbb{R}^{BAK} - \bigcup_{M \in \mathbb{M}^{DESC}} \mathfrak{D}(\mathbf{M}) \}$$

is a *non-empty* set.

The subset $\mathbb{R}^{BAK*}$ contains the following *backward-looking* rationalities: *deliberative, contextual, open, constrained, resolute.* Each of these is underdeveloped in the sense that there is not yet any formal aggregate socio-economic theory based upon that form. Yet the set $\mathbb{R}^{BAK*}$ now has the potential to further extend meta-cognitive inquiry, at the level of $\mathfrak{A}$. This step, in particular, represents one of the ways in which *rationality can inform strategy* within the wider conceptual framework of Singer (1992a). The various $r \in \mathbb{R}^{BAK*}$ with their corresponding inquiries, are as follows:

DELIBERATIVE: $\mathfrak{A}$'s goals are emergent, as learned capacities and potentials of $\mathfrak{A}$. (Rawls, 1972)

Inquiry: *Does $\mathfrak{p}+$ utilise to the full $\mathfrak{A}$'s newly-learned capabilities (competencies, capacities) developed during $\mathfrak{p}-$?*

OPEN: $\mathfrak{A}$ undertakes thorough or complete learning from past mistakes of $\mathfrak{A}$ and others (Popper, 1989).

Inquiry: *Have all mistakes in the history of* $\mathfrak{P}$- *been fully investigated and corrected?*

CONTEXTUAL: $\mathfrak{A}$ should take actions oriented to maintaining institutions and traditions that express a "good life with others" (Habermas, 1984).

Inquiry: *Is* $\mathfrak{P}$+ *part of a grand strategy* $\mathfrak{P}$ *involving "the creation or maintenance of traditions or institutions that express* $\mathfrak{A}$*'s vision of the good life with others"?*

CONSTRAINED: It is not rational to abandon a *long-standing* personal plan for the sake of a newly-formed current (t_n) preference (Slote, 1989).

Inquiry: *(i) Is completion of* $\mathfrak{P}$ *a long-standing unfulfilled mission of* $\mathfrak{A}$*? (ii) If* $\mathfrak{P}$+ *changed, abandoned, will* $\mathfrak{A}$ *be perceived (by others) as weak, and unreliable? (iii) Is continuation of* $\mathfrak{P}$+ *an opportunity for* $\mathfrak{A}$ *to develop lasting habits (of task-completion) conferring future benefits?*

RESOLUTE: $\mathfrak{A}$ should sometimes adopt an overall plan, at t_k , $k < n$, that is expected to include a subsequent formally-dominated choice. $\mathfrak{A}$'s preferences will then subsequently be reshaped to respond to these already-adopted plans. Thus $\mathfrak{A}$ should maximise "globally" over a life-span (McClennan, 1989).

Hence ask: *If* $\mathfrak{P}$+ *considered in isolation fails, at* t_n *, on the updated criteria, was this situation foreseen in original evaluation of* $\mathfrak{P}$*? (ii) Is* $\mathfrak{P}$+ *part of a plan* $\mathfrak{P}$ *that distribute benefits to* $\mathfrak{A}$ *over an extended time?.*

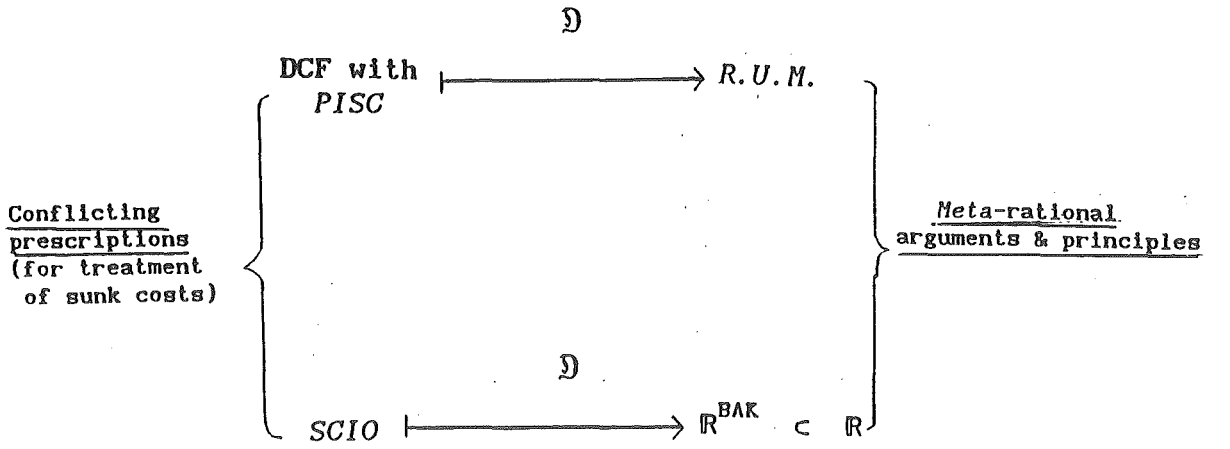
If these questions based upon *backward-looking* rationalities are attended to, together with the various content factors identified in the normative theory with its local meta-theory (i.e. in classes **[1]** to **[4]**) then a rather *holistic* and qualitative methodology, "*SCIO-BAK*" has now emerged for helping $\mathfrak{A}$ in strategic re-considerations. The inquiry system simply scans the total set of rationales for action based upon historically located knowledge and wisdom, whilst the substantive decision-content is systematically accessed by the summarised family $\mathbb{M}^{NORM}$ (section 2 above).

This methodology extends $\mathfrak{A}$'s rationality whilst it can also help $\mathfrak{A}$ to avoid a *local* rationality, the neglect of key factors and *rationales* in strategic decisions (Glazer *et al*, 1992). More generally, as an alternative prescriptive approach, *SCIO-BAK* also fares quite well on the six "desirable characteristics for an alternative paradigm" proposed by Rosenhead (1989). Specifically, *SCIO-BAK* is: (i) *non*-optimising for substantive outcomes, (ii) it has minimal data demands, (iii) it is simple, (iv) it conceptualises $\mathfrak{A}$ as an active inquiring system, and (v) it does not view $\mathfrak{A}$ as a hierarchy. Finally, (vi) the approach is especially oriented towards clarifying the terms of *conflict* in the strategy process, a point that is now made quite explicit in the remaining section of the paper.

5. META-RATIONALITY & *PISC*

Meta-rational arguments lie at the very heart of many conflicting model-based prescriptions widely discussed in the general strategy literature (Singer, 1991). In particular psychological and strategic conflicts associated with the **principle of ignoring sunk costs** (*PISC*) in $\mathbb{M}^{NORM}$ can now also be recast in terms of some general meta-rational arguments linking the *backward-looking* rationalities, $r \in \mathbb{R}^{BAK}$ with the *forward-looking* rationalities like *RUM*.

FIGURE 7. CONFLICTING PRESCRIPTIONS AS META-RATIONAL ARGUMENTS



Whereas models like DCF-NPV in $\mathbb{M}^{NORM}$ embrace *PISC* as part of the meta-theory, alternative techniques like *SCIO-BAK* explicitly refer to many aspects of the past history of $\mathfrak{A}$, so, like the choices of the basketball fan in Thaler's (1985) famous example of *PISC*-violation, the *SCIO-BAK* technique also appears to be prescribing violations of *PISC*. Like other model-based conflicts, this one can also be re-cast in terms of general meta-rational arguments in $\mathbb{R}^{BAK}$ x *RUM* . To make this quite explicit, the concept of the decision-function-rationality $\mathfrak{D}(M)$ of a model M (Morecroft, 1983) is once again rather useful, as illustrated in Figure 7. With this framework in place, the various meta-rational arguments linking the $r \in \mathbb{R}^{BAK}$ with *RUM*, outlined in Table 3 below, then reveal the complex multi-dimensional nature of any solution to the strategic mysteries surrounding *PISC*.

TABLE 3. META-RATIONAL ARGUMENTS LINKING $\mathbb{R}^{BAK}$ WITH *RUM*.

1. *ENRICHED DESCRIPTIONS:* For *RUM*, the description of Objects-Of Choice must be "rich enough", possibly including factors causally linked to the past (exactly as depicted in terms of **strategy** in Figure 3, above).

2. *OPTIMALITY:* Within an economy-of-cognition, $\mathfrak{A}$ should seek (i) *optimal rationality* i.e to balance non-forecastability against rule-worship. (ii) *optimal inertia* i.e. have triggered or timed re-considerations, or else some policy of non-reconsideration. (iii) *an evolutionary-optimum:* at some level of evolved intelligence, the benefits of additional intelligence are insufficient to justify the extra cost of sensory and nervous equipment, for $\mathfrak{A}$.

3. *CO-ORDINATION WITH OTHERS:* Inertia brings benefits of stability and clarity, increasing payoffs in many situations involving others. This works through $\mathfrak{A}$'s ability to enlist others, or to act as role model, because $\mathfrak{A}$'s intentions are always partly apparent to others.

4. *CO-ORDINATION WITH SELF:* Maximise lifetime-utility for $\mathfrak{A}$, A resolute (persistent) strategy generally enables development of more advanced capabilities and competencies. Therefore $\mathfrak{A}$ should invest in a *generalised* capability for being resolute.

5. *EVOLUTIONARY STABILTY:* If every $\mathfrak{A}$ (in a population or aggregate system) was a foward-looking utility-maximiser with respect to external rewards or prizes, then much time & effort would be *wasted* in long fights against others in a population for the "prizes" widely perceived as valuable. Such a *population* could be displaced by another that, for example, decides whether to fight by tossing a coin (Dawkins 1980).

6. *INSTITUTIONS:* Institutions are historically located and they also express or communicate values. Expressive actions cannot be reduced to *RUM* (e.g. Hargreaves-Heap 1989).

In sum, the wisdom inherent in apparent violations of *PISC* by $\mathfrak{A}$ is made quite explicit by these meta-rational arguments . Since $\mathfrak{A}$ cannot be certain about preferences for the partially defined uncertain objects of strategic choice ($\mathfrak{P}$+ *versus* **[not** $\mathfrak{P}$+ **]** & $\mathfrak{P}^{ALT}$) a generalised appeal to alternative principles of rationality that cannot necessarily be comandeered by *RUM,* is simply one distinctive form of **wisdom** in strategic decisions.

7. SUMMARY & CONCLUSION

Several prescriptions for strategic re-considerations flow from existing normative and descriptive models. These have been summarised in sections 2 & 3. The conceptual framework of Strategy-as-Rationality then extends this family of prescriptions, by viewing $\mathfrak{A}$ as a *plurally*-rational agent whose decision processes reflect, at some procedural level, the full set of the *backward-looking* rationalities. The associated *SCIO-BAK* inquiry procedure is then designed to activate meta-cognitive processes corresponding to *plurally*-rational choice. In the new framework, the linkages with normative theory (*via RUM* $\in \mathbb{R}$) simply serve to draw attention to the full set of "normatively"-important *content* factors, including the various *sunk-cost-factors* (i.e. classes **[1]** & **[4]**) that are explicitly recognised in $\mathbb{M}^{NORM}$ or the local meta-theory.

In conclusion, it is now quite apparent that strategic re-considerations by $\mathfrak{A}$, like other forms of *plurally*-rational choice, take place within a "Multiverse" of content and process, future and past, intention and action, self and others. It follows that researchers in the general field of strategy (e.g. Ansoff, 1991 *versus* Mintzberg, 1991) should not themselves persist with old *paradigms* $\mathfrak{P}^{*}$ that neglect at least some of these dimensions, just because they themselves have done so in the past.

CHAPTER FIVE

STRATEGIC INTELLIGENCE AND PLURAL RATIONALITY

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1. INTRODUCTION.

This chapter outlines some new methodologies for competitive and strategic analysis that are based upon recent developments in the general theory of rational decisions. Some consideration is given to the scope of application and potential for abuse of existing methodologies, then some new techniques are introduced. Attention is particularly drawn to to several **questions**, associated with plural rationalities, that intelligence analysts should be routinely asking; firstly, about the various techniques of strategic analysis and secondly, about competitor firms or intelligence targets. **Answers** are **not** provided here to these questions, nor is there a discussion of techniques for **acquiring** competitive intelligence information. The latter professional activities, together with the associated ethical judgements, are left to the reader.

In the first part of the chapter, a device is described for screening general theories and models of competition, with respect to their potential value for business intelligence analysis. The device consist of six simple questions designed to draw analyst's attention to some typical limitations of many of these theories (Singer and Brodie, 1990). The next section of the chapter outlines a variant of the **SCIO** technique of strategic analysis. "SCIO" stands for Specifying Canonical Issues and Options (it also means "I know" in Latin). The techniques capture an ancient idea about decision making that has been somewhat neglected in modern planning practice. It is simply an adaptation of the philosophical **principle of continence**. According to that principle, a rational agent (planner, analyst) should strive to hold in mind the maximum possible number of "reasonably relevant" considerations, when trying to evaluate actions (or to make predictions). In order to achieve continence, intelligence-analysts generally need mnemonics, not mathematics.

The variants of SCIO are innovative in using the plural rationalities themselves as a classification scheme, or mnemonic, to directly aid strategic decision-making. The emphasis is placed upon accessing relevant knowledge, but with "relevance" determined in advance by normative criteria of rationality, rather than vague personal reflection. The version of SCIO set out here (SCIO-COMP) is specifically directed to business competitor analysis, i.e. understanding and forecasting the strategic behaviour of some specified competitor or other firm. The key innovation in this version of SCIO is a view of competitor firms as a **plurally-rational-agents**. A set of questions, or directions for competitor analysis, flow quite naturally from this perspective.

The chapter ends with a discussion of some recent progress towards using the concept of **potential performance** in strategic analysis. New **quantitative** techniques and decision-support methodologies (e.g., Oral, 1986, 1987) have captured an emerging theme in economic theory (e.g. Leibenstein, 1976; Hargreaves-Heap 1989) that loosely associates rational action with the realisation of potential. This form of rationality and the related techniques enable the strategic planner to partly avoid the many problems associated with forecasting in complex and volatile socio-economic systems.

2. *HYPER*-RATIONALITY AND COMPETITION

Despite these problems, understanding and possibly even predicting the strategic behavior of specified competitors remains a major goal of the competitive intelligence process. This activity has now become an important component of strategic analysis, as the contemporary competitive environment of the firm often consists of just a few major players (or strategic groups). Traditional models of competition in the economics and marketing literatures have been criticised as being "almost useless" for this sort of practical competitor analysis (e.g., Henderson, 1983). One must therefore ask why this could be so, and what alternative theoretical approaches have the potential to contribute to the competitive intelligence function.

There are obvious risks in borrowing ideas about competition from other domains of social enquiry and then applying them to the business analysts' task. For example, the prospects for deriving good techniques from **biological** theory, such as population-ecology models, are limited by some basic differences in subject-matter. To start with, organisations or firms have few properties in common with biological populations; secondly, the competitive behavioural repertoire of organisations bears little structural resemblance to that of populations. In addition, business competitor analysis, unlike biology, is an activity conducted from the perspective of an industry participant.

Similar limitations constrain the predictive and explanatory power of any given theory or model of competition. Since these limitations are themselves of some importance to intelligence analysts, they should be made rather more explicit and obvious. To this end, a total of six basic criteria (including those above) were proposed in Singer and Brodie (1990) for use as a preliminary screening or evaluation device, for theories and models of competition, from the point of view of a business intelligence analyst. These six criteria are:

(1) Information about competitors: both current and historical information should be taken into account.

(2) Nature of the competitors: they should be organisations, not individuals, organisms or populations.

(3) Nature of behaviors analysed: corporate as well as marketing strategies should be in the repertoire.

(4) Participant perspective: emphasis should be on the target's strategic behavior, rather than the competitive process as a whole.

(5) Decision content: the content (factors, issues) of the target's deliberations over strategy should be represented in some form.

(6) Decision process: the target's decision processes and internal politics should be represented in some form.

Theories, models and techniques of competitive strategic analysis may be screened using these criteria. Five examples are briefly discussed in this section, in order to illustrate the approach. They are: Oligopoly theory, Structural analysis, Hypergames, Political process models and Attributuion research. (For further examples, 22 altogether, refer to Singer and Brodie, 1990).

Oligopoly Theory is OK on criteria 2, and 5 but not on 1, 3, 4, 6: Whilst this theory is related to econometric techniques of forecasting it does not purport to predict the strategic behavior of specified firms as players. It simply offers game-theoretic equilibria as benchmarks; but it must be noted that these equilibria reflect a specific and rather narrow assumption about the form of rationality of the players.

Structural and value chain analysis. (Porter, 1980, 1985) is intended for self-analysis (understanding the competitive position) or for understanding the position of specified competitors. In either context it is OK on criteria 1-5 but conspicuously fails on criterion 6. That is, it tends to neglect behavioral and political perspectives, with the associated distinction between intended and realised strategies. Conversely, *organisational and political prcess models*, taken in isolation, tend to neglect the content of competitor's decisions (i.e. the salient strategic issues as perceived by the competitor). That is, they fail on criterion 5.

Two other approaches that do involve player's beliefs in a competitive context are *attribution research* and *hyergaming*.

Corporate attributions: One stream of research has focused on corporate attributions (in speeches and annual reports) and the interpretation of stated corporate objectives (e.g.,Salancik and Meindle, 1984; O'Shaunessy, 1984). However, this approach also remains silent on the real content of the target's decisions (criterion 5).

The Hyper-game approach (Bennet and Huxham, 1982) accomodates the idea that players perceptions of the payoffs could differ in a game of strategy. It is an attempt to represents the cognitive empathy between game-players by explicitly representing their beliefs and goals, albeit in a rather crude form. Bennet (1980) points out that this type of complexity is a minimal requirement for predicting the outcome of strategic interactions. Whilst the hypergame approach is distinctive in combining an explicit treatment of cognitive, strategic and instrumental rationalities into a single decision-aiding device, it nevertheless rates rather poorly on criteria 1 (information about the players...personalities, cultures, etc.) and 4 (target's behavioral repertoire).

Proponents of these (and many other) approaches have themselves often stressed that the various theories, models and analytic techniques are not intended to be comprehensive nor definitive. In practice they are often regarded as good frameworks for organised discussion and for the structuring of judgements. They are not algorithms for generating explicit solutions to the strategic problem of the firm. In fact, to expect the latter from any particular theoretical approach is simply to run the risk of paralysis-by-analysis, or *hyper*-rationality. The theme of "structured judgement" in the competitive analysis context is pursued a little further in the following section, where the SCIO-COMP technique is now described.

3. SCIO-COMP : COMPETITOR ANALYSIS

The several variants of the SCIO technique each have quite modest aims. Each is designed to improve the quality of strategic decisions essentially by extending the scope of **activated** knowledge, whilst at the same time lending a structure to the policy dialogue that parallels the structure of plurally-rational choice. As with all other techniques of decision analysis, there is some danger that individual personalities, power-related manouveuring and

political prejudices might intervene to truncate or unbalance the SCIO-based policy dialogue. Put differently, SCIO is not guaranteed to withstand organisational intrigue.

The version of SCIO specifically used for competitor-analysis is rather less vulnerable to internal politics. This is because intelligence activity like competitor analysis is a relatively detached process, somewhat akin to preparing an economic forecast. That is, it is simply an input to the strategy process. The SCIO philosophy may be applied to the task of understanding and predicting the strategic behavior of a specified competitor firm. This is an important task in the contemporary business environment, where the competition often amounts to a few major players (or strategic groups).

In this competitor analysis context, a view of the intelligence **target** as a **plurally-rational-agent** facilitates the interpretation of current and historical intelligence information. With this perspective, information on such factors as market position, cost structures, power relationships, management profiles, etc. may be coupled to considerations flowing from the plural rationalities, such as: (a) the identity-preservation motive, (b) communicative acts (signals and promotions) (c) the possibility of precommitment or self-binding behaviors (d) goals and motivation (e) distribution of cognitive resources and heuristic use (f) language use (g) blind-spots, hot-spots and the structure of core organisational beliefs.

The SCIO-COMP approach to competitor analysis can be made much more explicit by directly associating forms of rationality with counterpart concepts in organisational strategy (Singer 1991b) and then deriving simple questions, from these linkages, that **should** be systematically researched and reflected upon by the intelligence analyst. These questions, to be asked about the **target competitor organisation**, are listed in Table 1, below. They define many directions for enquiry that flow directly from the assumption that the target is a single plurally-rational agent. (Note that the questions in Table 1, below, are about the target organisation, whereas those in chapter one were about models and techniques)

TABLE 1. SCIO-COMP: DIRECTIONS FOR THE INTELLIGENCE EFFORT PRESCRIBED BY A VIEW OF THE COMPETITOR FIRM AS A PLURALLY-RATIONAL AGENT.

(a) Competitor's beliefs (belief-rationalities)

1. WHAT ARE C's EXPECTATIONS ABOUT OUR MOVES?
   Possibilites for strategic surprise.

2. DOES C USE EXTRAPOLATORY FORECASTING?
   Use Cs past sales data to mimic.

3. DOES C USE CONVENTIONAL TEMPLATE PLANNING?
   Role-play, extrapolate available data.

4. DOES C USE SOPHISTICATE MODEL-BASED FORECASTING SYSTEM?
   Can it be duplicated or reconstructed?

5. DOES C CONDUCT ROUTINE EX-POST REVIEWS OF OPERATIONS?
   Identify C's past errors and expect C to avoid repetition.

6. ARE ANY OF C'S APPARENT BELIEFS (OR STATEMENTS) INCONSISTENT?
   Expect eventual revision and refinement of those beliefs.

7. DO C'S RECENT ACTIONS INDICATE "BLIND-SPOTS"?
   Can these be predicted or exploited?

(b) Competitor's calculations (means-rationalities)

8. DOES C HAVE A RECORD OF ACTIONS BASED ON NON-OBVIOUS INFERENCES?
   (EG. SUCCESSFUL FIRST MOVES)
   Expect future intelligent strategies.

9. IS C USING A MODEL-BASED STRATEGY-SELECTION SYSTEM?
   Can the model be identified and reconstructed.

10. WHAT ARE C's POLICY RULES AND ESTABLISHED PROCEDURES?.
    Identify, use role-playing.

11. IS FLEXIBILITY EVIDENT IN C's STRATEGIC POSITION?
    (cf. Aaker and Mascarenhas, 1984)
    If flexible then easier to deter, influence.

12. HAS C POSTPONED STRATEGIC MOVES, (I) TO PERMIT CLARIFICATION OF ENVIRONMENTAL TRENDS (II) TO CORRECT INTERNAL DEFICIENCIES?
    Propensity to postpone in future for similar reasons.

13. IS THERE INTERNAL DISAGREEMENT OVER GOALS OR OBJECTIVES?
    Volatile: self-binding strategic move is possible outcome.

14. DOES C USE ADAPTIVE PLANNING? (Ackoff, 1988)
    Role play, reconstruct data etc.

15. WHAT ARE IMPLICATIONS OF C's USE OF (a) SPECIFIC COGNITIVE HEURISTICS (e.g, AVAILABILITY, REPRESENTIVENESS, ANCHORING) and (b) HEURISTIC PLANNING GUIDES.? Consider how these could effect C's judgements and probability estimates (cf. Schwenk, 1984).

16. WHAT ARE C's CAPABILITIES?
    These limit strategic possibilities.

17. WHAT IS C'S ACTUAL AND POTENTIAL LEVEL OF PERFORMANCE?
Can be used to prescribe strategy (cf. Oral, 1987)

18. DOES C USE "PARE" ANALYSIS. ie. ASSESSING POTENTIAL, RESILIENCE?
Replicate the analysis (cf. Derkenderen & Crum, 1979).

19. HOW STRONG IS C'S STRATEGIC MOMENTUM (STATUS-QUO PREFERENCE)?
When will C "throw good money after bad"?

(c) Competitor's goals, motivations (ends rationalities)

20. WHAT ARE C'S STATED GOALS OR OBJECTIVES?
Any implications for likely strategy?

21. WHAT GOALS ARE IMPLICIT IN C's ACTIONS?
Current goals might reflect past actions

22. ARE THESE GOALS WELL-CHOSEN, SUITABLE?
If not expect poor performance.

23. CAN C's (a) CURRENT ACTUAL GOALS, (b) STRATEGIC VISION, BE INFERRED FROM C's PAST BEHAVIOURS, PATTERNS, AND STATEMENTS?
These are likely to be the actual rather than stated goals

24. WHAT IS C's INTERNAL INCENTIVE STRUCTURE?
Performance measures for divisions? Stock options? etc.

25. DOES C BALANCE SHAREHOLDER VALUE-CREATION AGAINST STAKEHOLDER INTERESTS? IN (i) ACTIONS, (ii) STATEMENTS, AND (iii) JUSTIFICATIONS?
This could be a stable property of the organisation.

26. DOES C HAVE AN IDEOLOGICAL COMMITMENT, "HOT SPOT", OR MISSION
eg. involving specific stakeholders.

27. BY WHAT PROCESS OR PROCEDURE DOES C FORMULATE GOALS?
If consultative process (like *ringi)* expect stronger commitments.

28. HOW MUCH IMPORTANCE DOES C APPEAR TO ATTACH TO THIS PROCESS OF GOAL-FORMULATION?
If high then expect better performance, realisation of potential.

(d) Competencies: Practical, Expressive, Systemic rationalities.

29. IS C COMPETETENT AT IMPLEMENTATION, "SPIRALLING"?
Expect closer correspondence between intended, realised strategies

30. DOES C HAVE INTERNAL PROGRAMMES OF CAPABILITY-DEVELOPMENT, IN VARIOUS FUNCTIONAL AREAS?
Expect improved perfromance.

31. IS C SKILLED AT MATCHING CAPABILTIES TO STRATEGIES?
Expect continued good strategic "fit".

32. DOES C HAVE A CORPORATE (or BRAND) (i) IDENTITY? (ii) REPUTATION (iii) NICHE?
If so will probably fiercely defend these, e.g. in takeovers.

33. DO C's PAST MOVES HAVE SYMBOLIC VALUE, REINFORCING IDENTITY?
Expect more of the same.

34. DOES C MAINTAIN TRADITIONS?
Expect strong influence on policy, strategy

35. HOW SIMILAR IS THE PAST AND CURRENT CONTEXT, FOR TRIGGERING THE TRADITIONAL RESPONSES?
If similar, expect traditional (possibly weak) strategy.

(e) Competitor's ethical policies.

36. DOES C USE (i) SOCIAL COST-BENEFIT ANALYSIS, (ii) UTILITARIAN PUBLIC JUSTICATIONS?.
Expect some stability to these practices, policies

37. IS THERE A RECORD OR POLICY EMPHASISING FAIRNESS IN THE TREATMENT OF STAKEHOLDERS.
Expect some stability to these practices, policies.

38. DOES C RECOGNISE STRATEGIC DUTIES AND OBLIGATIONS? HOW ARE THESE INTERPRETED?
e.g., to stakeholders, governental agencies, overseas entities, etc.

(f) Competitor Analysis and Interactive Rationality

39. IS THERE A PATTERN OVER TIME IN C's ACTIONS OR DECISIONS?
Extrapolate the pattern

40. HOW DOES (ANALYST'S) OWN SITUATION EFFECT THE ANALYSIS OF C?
WHAT ARE (ANALYST'S) BIASES?
Reflect, introspect on analyst's possible biases, motives etc.

In SCIO-COMP, the actual strategic behaviour of organisations is identified with the behaviour that one would prescribe and expect from any *plurally*-rational agent. Despite frequent claims to the contrary, there is nothing fundamentally wrong with viewing an organisation as a rational-agent, so long as the relevant **forms** of rationality are themselves carefully specified (refer to chapters two and three). The view of the organisation or strategic entity as a plurally-rational agent is, in a sense, rather optimistic. Where others have seen only chaos and garbage-cans in the organisational decision process, SCIO-COMP sees many useful parallels between what *is* and what *ought* to be in the domain of the strategic behavior of firms.

4. CORPORATE POTENTIAL & THE ICM.

Some of the questions posed in Table 1, above, make reference to the concepts of organisational **capabilities**, or the **potential** performance of the firm. Traditionally, these concepts have belonged in the psychological domain; however, their importance to general economic and competitive analysis has now become quite widely recognised (e.g. Leibenstein, 1978;

Hargreaves Heap, 1989; Oral, 1986). The philosophical basis for emphasising "potential" in strategic planning ultimately lies in the idea that rational agents have a duty to develop their own talents (whatever these may be) to the highest possible level...and to put them to good use. This idea appears in many of the strands that have at times been woven into the overall fabric of plural rationality, including ethical, expressive, selective and systemic forms.

The earliest reported attempt to operationalise the concept of potential achievement, in the context of organisational strategy may be found in the "Brain of the Firm" (Beer, 1972). Derkenderen and Crum (1979) subsequently devised the strategic investment analysis technique of Potential and Resilience Evaluation (PARE), where a firms unrealised potential and its ability to cope with adversity are taken as key determinates of its economic value. However, neither of these early approaches extended to the **competitive environment.** The International Competitiveness Model (**ICM**) developed by Professor Muhittin Oral has enabled some significant progress in this respect (Oral, 1986). The ICM and the accompanying methodology of competitive strategic analysis involves quantification of the actual and potential performance of the firm **and** its specified competitor(s).

When using the ICM for strategic analysis it is necessary to measure or estimate numerous parameters relating to the "host" organisation as well as the target competitor. These parameters cover manufacturing, marketing, financial, organisational and macro-environmental factors. Parameter values may then be used in an algorithm to yield prescriptions for competitive strategy (e.g., Oral, Singer and Kettani, 1990). The ICM satisfies all of the six screening criteria for models of competition, discussed in section 2 of this chapter. Like SCIO-1, the ICM is a rather holistic approach to analysing the strategic problem of the firm. It has also served as an excellent framework for sourcing and collating competitive intelligence in a quantitative form, identifying strengths and weaknesses of the firm and its competitors, as well as a basis for a decision-support-system (Oral, 1987).

7. CONCLUSION

This chapter has set out one approach to screening and evaluating competitive analysis techniques, and then introduced a variant of SCIO specifically oriented to competitor analysis. With conventional techniques, strategic analysts often myopically attend to only a subset of the issues that have **normative** importance for competitive strategic interactions, as prescribed within a framework of plural rationality. Many of these issues can now be more readily identified by using the SCIO-COMP technique.

Alternative prescriptive methodologies, like the ICM, could also be used in conjunction with SCIO-COMP. At the very least, **multiple** quantitative and qualitative techniques should be used routinely in competitive analysis; but these should also, at the same time, be coupled to a good understanding of their specified limitations. Finally, since all concepts of rationality are of limited power (e.g., Levi, 1986; Rescher, 1988) the intelligence analyst should always expect to encounter at least some unresolved and **unresolvable** mysteries in business competitor analysis.

CHAPTER SIX

META-THEORIES AND CAPITAL BUDGETING

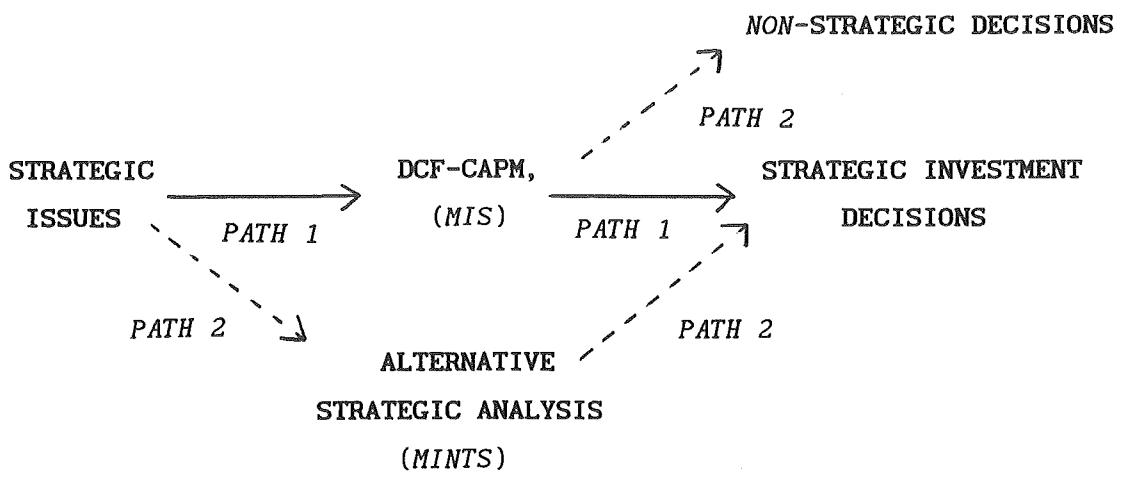
1. INTRODUCTION

Numerous surveys of the use of capital budgeting techniques have reported the difficulties experienced by managers attempting to incorporate strategic considerations into financial analysis. For example Marsh *et al* (1989) reported that managers using DCF analysis were sometimes asked to "ignore the numbers (in their analysis) and express the strategy in words". More recently, Pike (1991 p243) reported "only moderate progress" in overcoming various practical problems with capital budgeting techniques, although these have been recognised "over the last two decades".

About one decade ago, this recognition motivated some tentative explorations of the finance-strategy interface (e.g. Bowman, 1980; Pinches, 1982; Bettis, 1983; Myers, 1984). Subsequent research has followed two distinct paths, in the search for a finance-strategy synthesis and a better understanding of strategic investment decisions (SIDs). One path has led to **refinements** of capital budgeting methodologies, in order to **assimilate** strategic considerations (e.g. McDonald *et al,* 1986; Dyl *et al*, 1987; Jensen, 1987; Myers, 1988; West *et al* 1989; Pike 1991, to mention a few). "Assimilation" is used here in the Piagetian sense, meaning that the basic cognitive *schema* of researchers remains stable, but it is adjusted to cope with new experiences. In Lakatosian terminology, the core paradigm of capital budgeting has been retained in *Path 1,* but it is changed incrementally in response to evidence, experiences of failure, or a sense that it is incomplete. An alternative path, *Path 2,* has been trodden more heavily in planning, modelling and decision-research (Wensley, 1981; Oral, 1986; Mehrez *et al,* 1989). This path seeks a more radical **accomodation**, a change in the basic cognitive schema, or a revolutionary *paradigm-shift* in prescribing strategic investments.

Path 2 seeks out new ways of incorporating the full range of strategic issues into the investment decision process. It seeks alternative *non*-DCF methodologies for **strategic investment decisions** (SIDs). At the same time, applications of DCF are **confined** to different types of *non*-strategic investment decision. The present chapter treads the second path, but it is quite innovative in drawing together several previously isolated *meta*-theories (i.e. theories *about* the use and effectiveness of other theories) and tracing their combined implications for the rational use of DCF methodologies.

FIGURE 1. STRATEGIC *versus* FINANCIAL ANALYSIS



In the following section, five *meta*-theories of capital budgeting are identified within the MS-OR, strategic-planning, forecasting, rationality and finance literatures. These *meta*-theories are quite independent, having few mutual citations, but they are also convergent, in the sense of having similar conclusions. In combination with one another, these *meta*-theories identify **contexts** for rational applications of DCF, some unorthodox **roles** for DCF analysis in the organisational strategy process, as well as some specific **limitations** of DCF methodologies.

It has been suggested before that DCF-use could "sometimes be irrational" (Brunsson, 1990). The convergent *meta*-theories now sharpen that critique by quite clearly identifying decision-**contexts** and decision-**states** which *are* suited to DCF analysis. These are discussed further in section 3, below, where a distinction is made between the following three *types* of decision:

TYPE 1 : **investment** *versus* some other *non*-investment strategy, like cost reduction.

TYPE 2 : **selection** of assets from a set of technologically similar assets having **known** performance parameters, and

TYPE 3 : **financial** decisions, such as choices amongst leases.

The *Meta*-theories limit rational applications of DCF to the second and third type of decision, or problem, only. For *TYPE 1* problems, i.e. SIDs, alternative prescriptive methodologies, with alternative forms of rationality are needed.

2. THE *META*-THEORIES

A *meta*-theory would normally be a set of natural-language statements or propositions *about* a formal theory or model, although the *meta*-theory could itself be formalised (Mehrez *et al,* 1989). For present purposes, it is convenient to think of a *meta*-theory as a mapping, $\mathfrak{M}$, that associates with any given theory or model, **M**, a set of propositions $\{m_1, m_2, \ldots, m_j\}$ about the use of **M**, its effectiveness and its relationships with other techniques, etc.

$$\mathfrak{M} : \quad \mathbf{M} \quad \Rightarrow \quad \{m_1, m_2, \ldots, m_j\}$$

At least five distinctive *meta*-theories with this general form are now identifyable as research streams in OR-MS, strategic-planning, forecasting, rationality and finance theory. Each of these *meta*-theories is relevant, either directly or indirectly, to the application of DCF to SIDs, because DCF analysis is: (i) a **model**-based strategy selection technique, (ii) often part of a **planning** system, (iii) involves **forecasts** and (iv) is a prototype of **rational** managerial decision-making. Briefly, the five *meta*-theories are:

1. *Meta*-**modelling**: This concerns the use of all types of formal model. *Meta*-modelling has documented diverse applications of OR-MS models to strategic-level problems (Wagner, 1990) and it has yielded a variety of conceptual frameworks for (i) **selecting** models (Eilon, 1985; Mehrez *et al*, 1989) (ii) **evaluating** techniques (Prescott *et al,* 1989; Singer *et al,* 1990) and (iii) **reformulating** the role of models in the strategy process (Fischoff & Goiten, 1984; Bennett, 1985; Linstone, 1985, Van Gigch, 1991).

2. *Meta*-**planning**: This has studied the effectiveness of conventional logical planning methods (Boyd, 1991; Hayes, 1985; Lenz & Lyle 1985, etc.) The "logical" approach, i.e. quantification of targets, preparation of forecasts, selection of gap-closing strategies, then implementation, has often been challenged. Evidence suggests that some elements are often worthwhile; but others confront problems of implementation (Quinn, 1982), value-conflicts and gross uncertainties (Friend *et al,* 1987; Levi, 1986).

3. *Meta*-**forecasting**: This has explored the perceived and actual reliability of quantitative model-based forecasts (Makridakis, 1988). One major finding is that best-fit models of historic data are very unreliable for forecasting volatile parameters like sales or costs of a firm. Such forecasts must be distinguished from others, like actuarial projections, that are based on quite deeply understood systemic processes. A related stream of research has explored judgemental adjustments and subjective interventions in formal sales forecasting models, that seek to capture (i.e. assimilate) strategic information (West *et al*, 1989). However, there is still no evidence that the resulting methodologies actually do produce reliable forecasts. Several behavioural and philosphical perspectives, discussed subsequently in sections 3 & 4 reveal fundamental **limitations** on forecasting and probability-estimation in socio-economic systems (Doktor *et al,* 1988; MacIntyre, 1984; Singer *et al,* 1984; Einhorn *et al* 1982).

4. **Meta-rationality**: This concerns the many alternative forms of rationality, apart from rational-utility-maximisation, and their inter-relationships. The general theory of rational decisions spans many of the contemporary social sciences (economics, sociology, psychology, philosophy) where numerous (more than 35) distinctive forms of rationality have now been defined and analysed. Taken together, these comprise a set, $\mathbb{R}$ of **plural rationality**, as set out in chapter two (Singer 1992). This is discussed further, in relation to DCF use, in section 3 of the present chapter.

5. Finally, one must not, of course, forget the *meta*-**DCF** paradigm itself. This has focussed solely on the use (and abuse) of capital budgeting techniques, like DCF and sensitivity-analysis. The extent of their use (Klammer *et al,* 1984; Pike, 1988) and the problems encountered have all been well-documented (Marsh *et al*, 1988; Pike *et al*, 1991). *Meta*-DCF research simply confirms what *meta*-forecasting tells us: that forecasts of cashflows for applications of DCF constitute a "barrier" to effective use of the techniques, they are "extremely difficult" (Marsh *et al*, 1988) "impossible" (Crum *et al*, 1986), "inadequate" (Pruitt *et al*, 1987), or else "unreliable" when produced in a controlled experiment (Ang, *et al*, 1979). These "problems" of usage may now be considered in relation to the classification of problem-types or decision-domains (i.e. **STRATEGIC** *versus* **OTHERS**) set out earlier in chapter four.

2.1 Convergent findings

The five *meta*-theories are contemporaries of each other, but so far, they have run in parallel, hardly ever crossing each others paths. For example, there are suprisingly few mutual citations in the various literatures. It is now becoming quite obvious that the various streams have reached a point of confluence, where their common findings and conclusions are mutually reinforcing. Moroever, the earlier independence of the research streams can only enhance the credibility of their common findings. Essentially the same message is now audible, from many independent sources. One major finding, discussed earlier in chapter four (Table 2.) concerns the many unorthodox roles of DCF techniques (*ritual, glue*, etc.). A second major finding, also discussed in chapter four and developed further here, concerns the need to **classify decision problems** for selection of suitable solution methods and procedures.

(i) Classifying decisions

The *meta*-theories classify **decisions, probems,** and **contexts** as follows:

1. In *meta*-modelling, the classifications are as set out in Table 1 of chapter four (i.e. **UNPROGRAMMED** *versus* **PROGRAMMED**, etc.). In addition, the established distinction betwen "strategic and "other" types of decision is once again echoed in contemporary developments in the field of **strategic decision support** systems, where reseaRchers have distinguished between **MINTS**, or intelligent systems *versus* **MIS**, or information systems (Finlay, 1989). The former involve knowledge structures whilst the latter are essentally little more than spreadsheets. In this context, Wensley (1981) has also contrasted the **"BOXES & BASICS"** of strategic analysis (ccorresponding with MINTS) with the **BETAS** of model-based financial analysis (i.e. MIS).

2. In addition to these distinctions drawn from the meta-modelling literature, another stream of *Meta*-**planning** research has also classified problems as:

UNSTRUCTURED *versus* **STRUCTURED** (Mintzberg, *et al* 1976)
STRATEGIC *versus* **TACTICAL** (Quinn, 1980)
INTUITIVE *versus* **ANALYTIC** (Singer, 1981)
INCREMENTAL *versus* **FORMAL** (Quinn 1982)
INDUCTIVE *versus* **DEDUCTIVE** (Nonaka, 1988)....

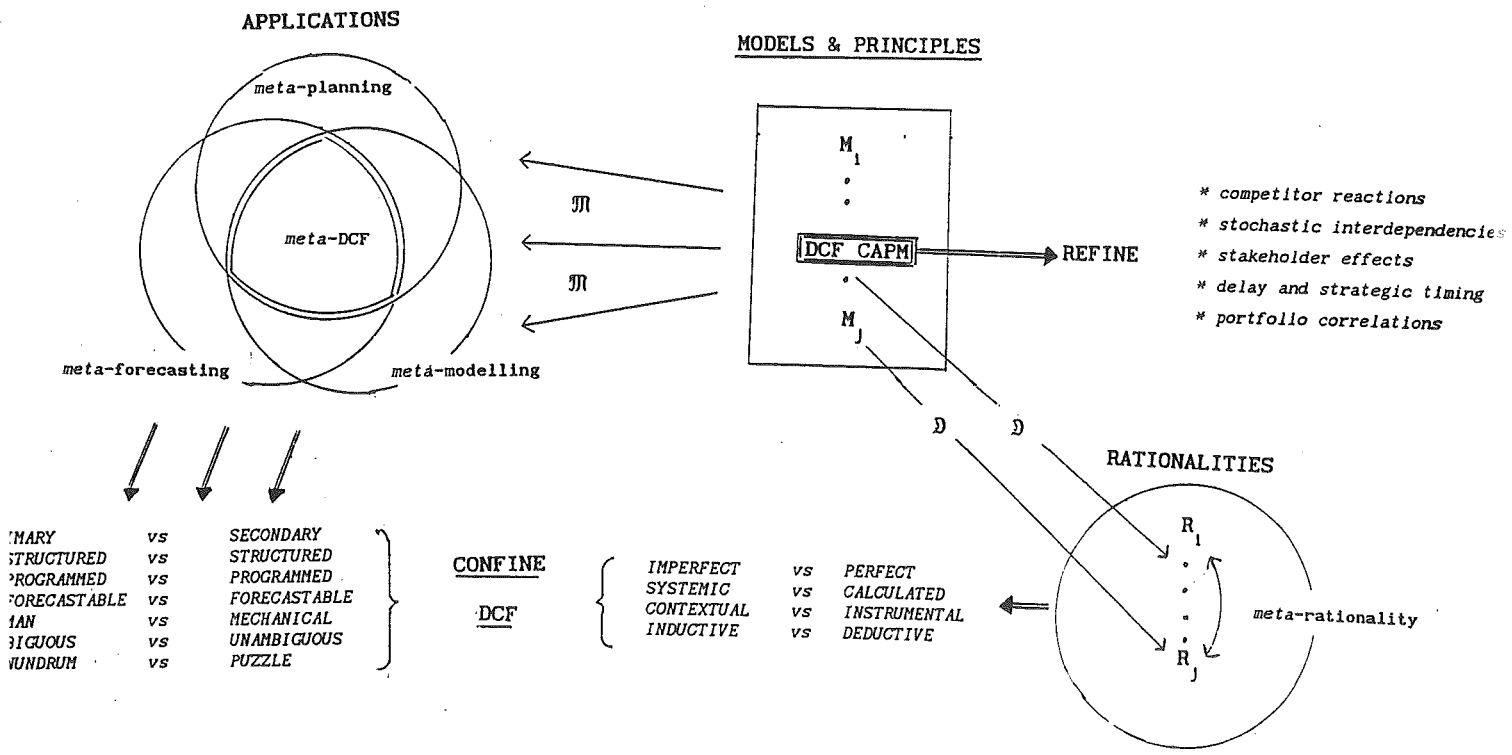
3. ... and *Meta*-**forecasting** has similarly characterised forecasting-contexts as:

UNFORECASTABLE *versus* **FORECASTABLE** (MacIntyre, 1984)

4. Corresponding to these distinctions are the many partitions of the set $\mathbb{R}$ of the *plural* rationalities, such as:

SYSTEMIC	*versus*	**CALCULATED** (Marsh, 1978)
PROCEDURAL	*versus*	**SUBSTANTIVE** (Simon, 1987)
IMPERFECT	*versus*	**PERFECT** (Hamlin, 1986)
COGNITIVE	*versus*	**INSTRUMENTAL** (Walliser, 1989)
CONTEXTUAL	*versus*	**INSTRUMENTAL** (White, 1989)

FIGURE 2. THE CONVERGENT META-THEORIES



5. However, the fifth *meta*-theory, of **DCF** itself, within the Accounting & Finance disciplines, is the only one that has so far **NOT** set out any explicit classification of decision-types. Instead, in this research paradigm, **all** types of investment decision have been interpreted strictly within the framework of the formal capital market theory. Put differently, within the mainstream Accounting & Finance literatures, the fundamental nature of the challenge posed by the convergent *meta*-theories has hardly ever been acknowledged (One exception: Bromley *et al* 1986). Despite the overwhelming weight of the evidence, it is still being argued that the "difficulties" with DCF use could be overcome through various technical **REFINEMENTS** or extensions of the methodology. In terms of Figure 1, *PATH 1* has been chosen in mainstream Accounting & Finance. Despite the forecasting problem and the complexities and incompleteness of the underlying *meta* rational arguments (chapters one & four), this traditional paradigm still insists on a path of assimilating strategic considerations into financial-economic models $\mathbf{M} \in \mathbb{M}^{NORM}$ with $\mathfrak{D}(\mathbf{M})$ as rational-utility-maximisation (*RUM*).

For example, it has been proposed that cashflow forecasts for DCF calculation should be adjusted to allow for **competitor's reactions** (Myers, 1988; Dyl & Hofmeister, 1987), that **stochastic inter-dependencies** of discount rates and other parameters should be formally modelled over the planning period (R. Jensen, 1987), that **stakeholder's** needs and reactions should be assimilated into a financial decision model (Cornell *et al,* 1987) and that calculated NPVs should include the value of **delay**, or waiting to invest (McDonald *et al*, 1986). In addition, strategic applications of DCF-CAPM (Naylor *et al*, 1982) seek to evaluate strategic investments relative to a pattern of forecast asset and market returns. These proposed refinements and extensions of basic DCF techniques for SIDs, all fly directly in the face of the convergent *meta*-theories of modelling, planning, forecasting, as well as rationality itself (Figure 2). In terms of the arguments set out earlier in chapter four, difficulty could be traced to the orientation within the Accounting-Finance paradigm towards applying *RUM*-based models to investment decisions by the strategic entity itself, as distinct from prescriptons at the aggregate, systemic or public-policy level.

3. THE *META*-THEORY OF DCF.

There is a direct correspondence between the specific limits of DCF analysis, recognised in the convergent meta-theories, and the distinctive limits of strong-instumental rationality relative to alternative forms, recognised in the general theory of rationality. This correspondence is set out in Table 1.

TABLE 1. DCF-LIMITATIONS AND ALTERNATIVE RATIONALITIES.

DCF limitations	Alternatives to *RUM* $\in \mathbb{R}$	Refer Chapter(s)
Unpredictability	*bounded, minimal*	One, Two
Goals & Values	*value-rationalities*	Three
Histories	*backward-looking forms*	Four
Competition	*strategic-beliefs*	Five
Potentiality	*selected, expressive, open*	Five

Taken together, the various *meta*-theories (modelling, planning, forecasting, rationality) and the developments set out in the earlier chapters now point to a new *meta*-theory of capital budgeting. The long-standing and well-documented "problems" encountered with practical applications of the traditional capital budgeting techniques may now be quite easily resolved at the level of this *meta*-theory, essentially by **CONFINING** the use of a variant of DCF to suitable contexts, rather than by **REFINING** the methodology itself. In this regard, it has been argued elswhere that organisations must "often be advised *not* to use" techniques like DCF, or that their use could "sometimes be irrational" (Meyer, 1990; Brunsson, 1990). The convergent *meta*-theories elaborate upon the terms "often" and "sometimes", making it possible to describe the contexts or problem-domains for rational *versus* irrational applications of DCF.

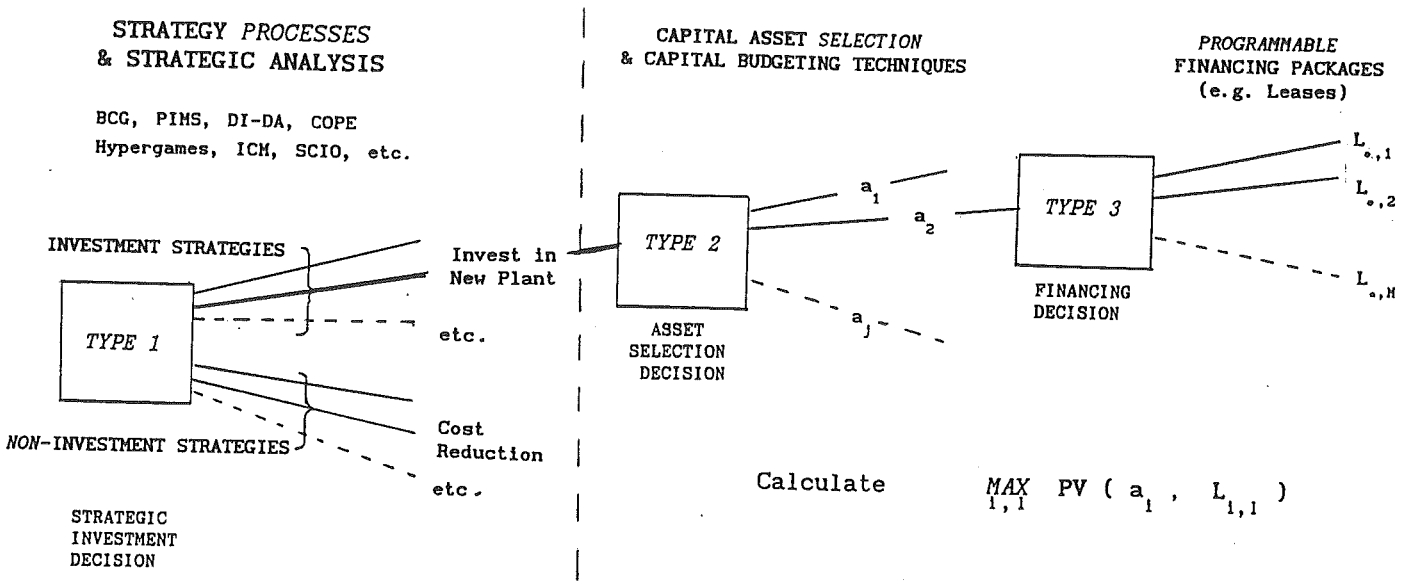
3.1. Specifying Contexts

For contexts which are **"unclear, unstructured, unprogrammable, unforecastable, ambiguous, primary, strategic conundrums"**, DCF-analysis can **only** function as set out in Table 2 of chapter four, as a ritual, status-symbol, or a bargaining framework, etc. *TYPE 1* SIDs generally answer this description, so that using DCF in those contexts now amounts to an irrational disregard for the limitations and convergent *meta*-theories discussed earlier. Put differently, in terms of the formal definition of a "*meta*-theory" offered in section 2 and illustrated in Figure 2, the set-theoretic intersection of the various *meta*-theories contains the simple proposition: $\mathbf{m}_{\alpha}$: *"Do not apply DCF to TYPE 1 decisions."* In these *TYPE 1* decision-contexts or problem-domains, alternative techniques and **plural** rationalities are now needed (e.g. Singer 1992a; Van Gigch, 1991).

On the other hand, **secondary** decision problems such as optimal asset selection and optimal financing are sometimes **"clear, structured, forecastable puzzles"** and therefore present good opportunties for (*strong-instrumental, calculated*) rational applications of DCF. These *TYPE 2*

& TYPE 3 contexts occur **after** the strategy process and after alternative techniques of strategic analysis have led the firm towards a strategy (Figure 3) involving **investment** in some class of capital asset, $\mathbb{A}$. Put differently, the *meta*-theories all contain the proposition $\mathbf{m}_{\beta}$: *"DCF should sometimes be applied to TYPE 2 & TYPE 3 decisions."*

FIGURE 3. THE RATIONAL USE OF DCF



PLURAL RATIONALITY $\mathbb{R}$ *RUM, calculated rationality*

In secondary contexts, rational **selection** or choices can sometimes be made from amongst a set of specified capital assets $\mathbb{A} = \{a_1, a_2, \ldots, a_l\}$ having **known** performance characteristics and similar technologies. To illustrate, consider the case of a firm producing and marketing a highly differentiated product, but where sales are constrained only by the firm's manufacturing capacity. After a long period of deliberation, the strategy process has converged onto a decision to expand plant capacity (this accurately decribes the case of Morgan Cars Ltd. in the U.K., in the 1980's).

Suppose, now, that there are two or more suppliers of technologically similar plant having different capacities and different prices. The objects-of-choice in this "investment decision" are now (perhaps literally) concrete. It is a simple asset **selection** decision, a programmable puzzle. Use of DCF to **select** the particular asset, $\mathbf{a}_j \in \mathbb{A}$, is now quite rational. The same applies to some types of **financing** decision. However, in these secondary contexts or decision-domains, the DCF decision rules and prescriptions must be reformulated, as set out below.

3.2. Modified DCF decision-rules

Within the context of investment decisions as secondary *TYPE 2* puzzles, having a **positive** *versus* **negative** NPV for the assets $\mathbf{a}_1$, $\mathbf{a}_2$,..., $\mathbf{a}_l$ is no longer particularly relevant. In these contexts, the decision to invest has already been taken, *via* a more holistic, incremental, human, primary process (that may also involve use of other models and techniques). The strategy processes in the primary phase, leading up to a decision: "invest in some $\mathbf{a} \in \mathbb{A}$" would normally take into account such factors as goal-conflict, competition, portfolio synergies, future technological changes, strategic timing and risks, etc. A calculated **NPV** < **0**, which cannot adequately incorporate these factors, should not then be used (in the role of *pliers*) to force a revision of an emergent *TYPE 3* investment strategy.

Instead, **if** relevant parameter values are known, one should simply use DCF to select a *dominating* asset $\mathbf{a} \in \mathbb{A}$, i.e. the one with the highest calculated NPV. Therefore, in this type of application, the rational NPV decision-rule simply becomes:

$$\textit{Select}\ \ \mathbf{a}_j\ \ \textit{where:} \qquad \text{NPV}\ [\mathbf{a}_j] = \underset{i}{\textit{MAX}}\ \{\ \text{NPV}\ [\mathbf{a}_i]\ \}$$

5.3. Financing decisions.

The *meta*-theory prescribes a similar DCF decision-rule for some types of secondary financing decision, for example choosing between well-specified leasing opportunities:

$$\mathbb{L} = \{L_1\ ,\ \ L_2\ ,\ \ L_p\ \}$$

The rational decision rule is then simply :

$$\text{Choose } L_j \quad \text{where:} \quad PV[L_j] = \underset{i}{MIN} \{ PV[L_i] \}$$

This decision-rule uses DCF calculations to eliminate dominated financing alternatives for a proposed strategic investment. If these decisions are combined, in a framework that sees each asset-selection-with-financing-alternative as a discrete package, with a choice amongst the distrete objects:

$$[a_i, L_{i,j}] \quad \text{with } i = 1,2,..,1. \quad \text{and} \quad j = 1,2,..,p_i$$

the combined decision rule is then simply:

$$\text{Choose} \quad \underset{i,j}{MAX} \{ PV[a_i, L_{i,j}] \}$$

4. CONCLUSION

If DCF analysis is adapted in this way for *TYPE 2 & TYPE 3* investment decisions, but finally abandoned for *TYPE 1* SID's, the way is then open for alternative prescriptive methodologies of **strategic** investment analysis (i.e. *PATH 1* in Figure 1). The convergent *meta*-theories then confirm that such methodologies should have plural and varied decision- function-rationalities. This has, in fact, been implicitly assumed by researchers in the field of strategic-decision-making throughout more than two decades (e.g. Rosenhead, 1989) but it has now been made quite explicit in the preceding chapters. In contrast to the *plural* decision function rationalities of the various alternative methodologies, the use of DCF involves an implicit choice of just one, rather narrow form of rationality (i.e. *RUM*) as the basis for deciding whether the firm should invest.

The many empirical studies of the use of capital budgeting techniques in organizations have all reported characteristic technical errors of application, such as mis-specification of the discount rate, failure to consider incremental cashflows relative to a next-best alternative,

overlooking or deliberately ignoring the valuation effects of capital structure changes, etc. (e.g. Marsh *et al,* 1989). However, these "errors" are now seen to be of quite minor importance when compared to the more serious *meta*-theoretic error of applying the DCF methodology to the wrong *TYPE* of investment decision, or in the wrong problem domain..

For *TYPE 1* SIDs, which are unforecastable, ambiguous etc., the positive-NPV decision rule should not be used, for the various reasons outlined and elaborated upon throughout chapters one to six. For *TYPE 2 & TYPE 3* asset-selection and financing choices, it is sometimes rational, in the relevant *strong-instrumental* sense, to use DCF analysis simply to maximise the calculated NPVs for the available known asset-&-financing packages . The *meta*-theoretic solution to the various "difficulties" and "problems" experienced with DCF is therefore one of **confinement** of DCF, together with an **accomodation** or paradigm-shift towards further development of new prescriptive methodologies for SIDs, such as ICM (Oral, 1987, Oral *et al,* 1989), SCIO and its variants, etc. *Meta*-rational arguments, particularly, tell us that a **refined** DCF will **never** succeed in assimilating the full range of key strategic issues like reputation, identity, potentiality, co-ordination and stability into probabilistic (conditional) forecasts of the firm's key financial parameters. In terms of the broad identification of strategy heuristics as "boxes" and the ever advancing uses of "intelligent" support systems, one might now elaborate upon the natural language propositions of the convergent meta-theories to say that *"MIS will never get BETA with new MINTS and BOXES".*

CONCLUDING REMARKS

CONCLUDING REMARKS

It would be easy, rather too easy, to reiterate here the major points of each chapter. Instead, this brief concluding section now attempts to do exactly the opposite and to challenge them. One cannot easily take a position like that taken in this thesis, without at the same time becoming a target of opposing forces. Fortunately, these have been placated, if not entirely overcome. I would, however, pay some respects by setting out reasons why the various positions taken in each of chapers one to six might, after all, be wrong.

1. The opening chapter explored the relationship between finance and strategy in terms of formal models $\mathbf{M} \in \mathbb{M}$, their decision-function rationalities $\mathfrak{D}(.)$ and various meta-rational relationships. This approach has indeed succeded in drawing attention to several theoretical relationships that were often ignored or de-emphasised in the earlier strategy literature. However, it may now also be appropriate to draw attention to the simple point that **not all** conflicting model-based prescriptions for SID's can be re-cast in this way. Some particular alternative models, for example ENPV, CAPM of course, have $\mathfrak{D}$ (ENPV) = $\mathfrak{D}$ (CAPM) (= *RUM*) yet still yield quite different prescriptions, even when model-parameters are evaluated with reference to the same data sets (of probabilities, forecast returns, etc.). In addition, the same model $\mathbf{M}_k$ could also yield conflicting prescriptions for SID's simply by estimating the model's parameters in different ways. Thus, the conceptual framework in chapter one does not tell the **whole** story of conflicting model-based prescriptions, it is simply the less obvious part.

2. The isomorphism $\mathfrak{I}(.)$ set out in "Strategy as rationality", with the associated identification of the strategic entity as a *plurally* rational agent has led to new concepts like *optimal* strategy, *expressive* strategy and not-for-profit strategic *committments*, together with variants of the SCIO technique. The core insight in this chapter was that "The language and conceptual foundations of strategic management theory very closely parallel those of the plural rationalities. This is surely no coincidence." Although others have explicitly or implicitly assumed forms of rationality when they have formulated their particular theory of strategy (e.g. Leibenstein's *Theory of X-efficiency*, Thompson's *Organisations in Action*, Williamson's *Markets and Hierachies*), some have made out a contrary case: for "Strategy as *irrationality*" Examples of the latter include De Vries & Miller's "neurotic styles" , or Argyris' "defensive routines". These are just some of the possible rejoinders one might expect to the question: "Strategy IS rationality.... what else could it be?". Perhaps, on reflection

(as prompted by one anonymous reviewer) that question might better have been posed as: "What else could it *have been*?". If, in the early development of strategic management theory, researchers had stuck to the view that people are *social* (not rational) *actors*, whose cognitive processes and motivations are determined primarily by social and emotional systems, then the contemporary theory of organizational strategy would then have turned out very differently. Since the "social actor" paradigm has not, in fact, dominated, most (but admittedly **not all**) theories of strategy are indeed now theories of *and about* rationality.

3. As meta-rational arguments converge towards meta-ethical theory, the conceptual framework of "Strategy as rationality" inevitably projects itself into the domain of business ethics, carrying with it associated problems of corporate moral agency. This extended framework now links strategy with ethics. It explains, in one sweep, concepts like "congruence", "parallism" and "reverse logic", whilst it also complements the re-integration at the systemic level of Economics with Ethics. However, as compared with "Strategy as Rationality", the flat statement that "Strategy **is** Ethics" is even more provocative. Of course, **not all** theories of moral behaviour are necessarily grounded in the assumption that man is primarily rational. For example, Etzioni has recently offered us a quite lengthy (94 page) explanation of why individual morality and individual rationality might **not** be the same. Instead, as he implied, some of us go to great lengths (i.e beyond what he considers as "rational" criteria) to fulfill what we ourselves construe as moral imperatives. I would simply note that once again, this description applies with equal force to collectives and organizations.

4. In chapter four, the emerging theory of strategy is applied to the enigmatic sunk-cost context. Past investments deform (to use a term suggested by Milan Zeleny) the environment of the strategic-entity and these historical deformations are then seen, within the extended normative theory, as boiling down to just a few *sunk-cost-factors* like reputation, or contractual obligations. All existing normative and decsriptive accounts then seem to underestimate the scope of the general meta-rational linkages between the *backward-looking* rationalities and their more familiar *foward-looking* counterparts. These linkages span some vexed problems of optimality, co-ordination, stability, attention and description. Accordingly, chapter four formulated a "generic sunk cost problem" as confronted by all plurally rational agents. Is this a correct formulation of the strategic problem? It could perhaps be argued instead that all strategic entities have some past history, so that **all** problems of strategy are, in fact, problems of "strategy-with-sunk-costs".

5. "Strategic intelligence and plural rationality" then switched perspectives from participant to observer. Strategic interactions in the real world of **many** plurally-rational-agents are not, in general, explicable nor predictable with reference to *RUM*-based models alone, nor even by using models of interacting *bounded* agents. Instead dynamic interactions occur between *plurally* rational agents, each of which operates in a multidimensional world of attentional limitations, multiple goals, constrained autonomy and rational-ethical concern! This rich imagery now points us towards some possible future theory of *Ultra*-games (cf. Howard's *Meta*-games and Bennett's *Hyper*-games), in which players (individuals, groups, corporations, networks, etc.) achieve a co-existence in a state of partial awareness, partial satisfaction and partial moral-fulfillment (as distinct from partial equilbrium). Although the rather Herculean task of working out the details of such a prospective theory of "*Ultra*-games" may have to be delegated upwards (to the deities) the associated SCIO-COMP technique of business competitor analysis is very down-to-earth: as a mere participant in (rather than observer of, or creator of) the real *Ultra*-game of strategic interaction, one strategic-entity could simply attend, systematically, to the multiple-rationalities of the other(s).

6. The final chapter then briefly revisited the opening theme. It has become embarassingly obvious that traditional finance-theoretic models need some radical re-thinking, if they are going to yield workable techniques for management. The simple classification of investment-problem-types, in the final chapter, with the suggested modified DCF decision-rules, now offers but one possible way in which proponents of forecast-based models like DCF could respond productively to the many convergent meta-theories. Alternative techniques like SCIO, or other new paradigms of strategy research like those of Zeleny, Sutherland, *et al*, each now offers new ways of improving the rationality of strategic decisions, in one sense or another. Accordingly, it seems quite safe to make a qualitative prediction at this point : rationality and ethics will very likely continue to inform strategy, and *vice versa*.

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